

HP 3000 Computer Systems

MPE III System Manager/ System Supervisor Reference Manual



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LIST OF EFFECTIVE PAGES

The List of Effective Pages gives the date of the current edition and of any pages changed in updates to that edition. Within the manual, any page changed since the last edition is indicated by printing the date the changes were made on the bottom of the page. Changes are marked with a vertical bar in the margin. If an update is incorporated when an edition is reprinted, these bars are removed but the dates remain. No information is incorporated into a reprinting unless it appears as a prior update.

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6-35	Nov 1978	I-4	Nov 1978
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6-49 to 6-50	Nov 1978	I-15	Nov 1978
6-52 to 6-54	Nov 1978	K-1	Nov 1978
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PRINTING HISTORY

New editions are complete revisions of the manual. Update packages, which are issued between editions, contain additional and replacement pages to be merged into the manual by the customer. The date on the title page and back cover of the manual changes only when a new edition is published. When an edition is reprinted, all the prior updates to the edition are incorporated. No information is incorporated into a reprinting unless it appears as a prior update. The edition does not change.

The software product part number printed alongside the date indicates the version and update level of the software product at the time the manual edition or update was issued. Many product updates and fixes do not require manual changes, and conversely, manual corrections may be done without accompanying product changes. Therefore, do not expect a one to one correspondence between product updates and manual updates.

First Edition	Jun 1976	32002A.00
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This manual, one of the set of manuals that document the Multiprogramming Executive (MPE III) Operating System, is an “Administrative Level” manual. The Manual Plan on the next page indicates the position of this manual (shaded block) in the overall set.

This manual is intended for HP 3000 Computer System users assigned the System Manager, Account Manager, or System Supervisor capabilities under the MPE-III operating system.

This manual is a reference book rather than a tutorial text for new programmers. You should understand the basic operating principles of the HP 3000 Computer System. You should also examine the *MPE Operating System, General Information Manual* (part no. 30000-90008) for an overview of the interrelationships between the main hardware and software features offered.

There are a number of differences between the operation of Series II/III systems and Series 33 systems. Differences are noted in appropriate places in the text and are summarized in Appendix K.

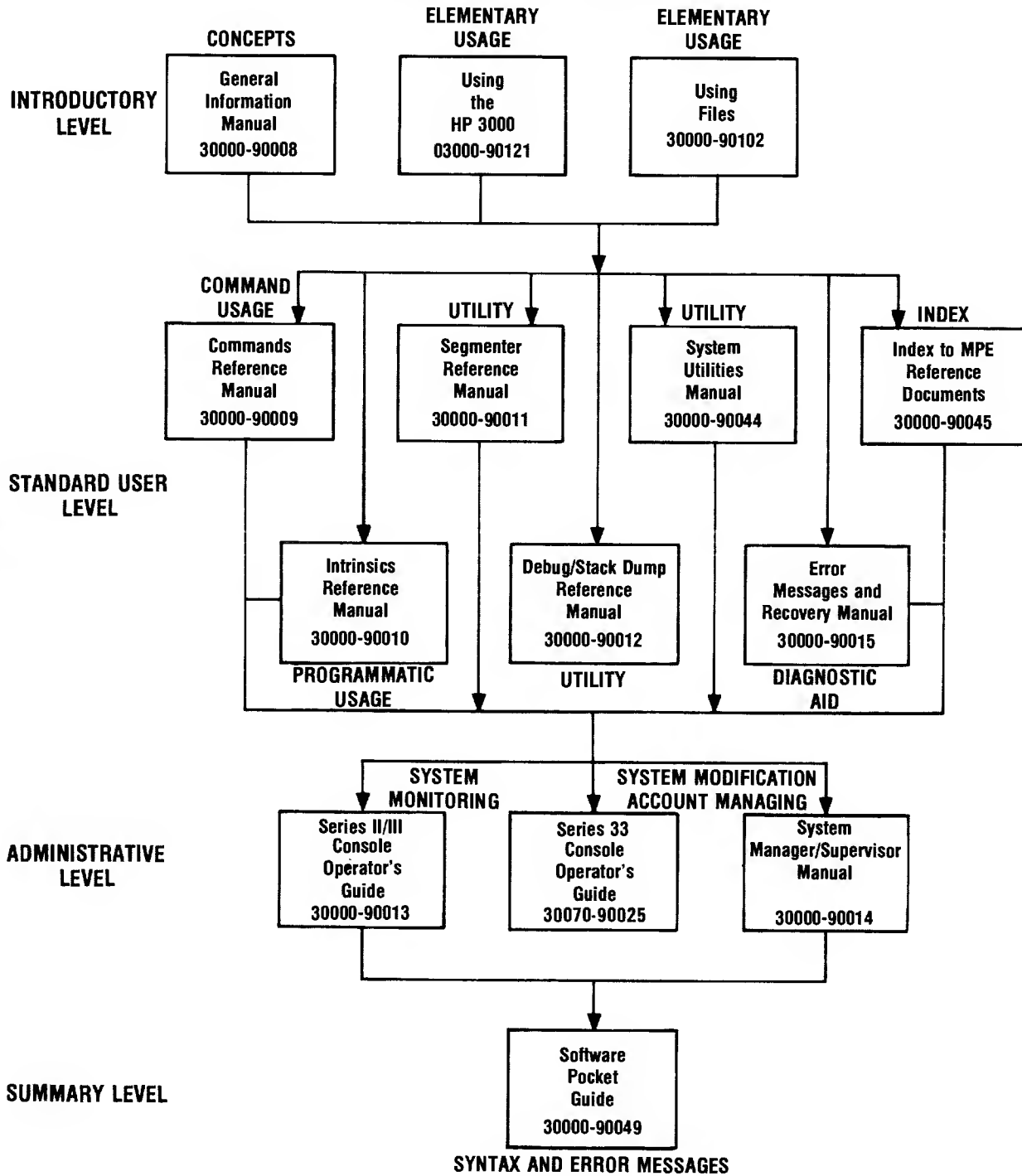
For the purposes of this manual, a “Serial Storage Device” is defined as a magnetic tape or a serial disc.

Other manuals which should be available for reference are:

MPE Intrinsic Reference Manual, part no. 30000-90010

MPE Commands Reference Manual, part no. 30000-90009

MANUAL PLAN



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A typical command including all three elements is as follows:

Colon
↓
:DEALLOCATE PROGRAM, COBOL
↑ ↑
Command Name *Parameter List*

The *colon* identifies a statement as an MPE command. In a session, MPE prints the colon on the terminal whenever it is ready to accept a command. In a batch job, you must enter the colon, placing it in the first column of the source card or record on which the command is to appear.

The *command name*, which you enter immediately after the colon, requests a specific operation. MPE prohibits embedded blanks within the name, and rejects the command if they appear. MPE interprets the first non-alphanumeric character encountered as denoting the end of the command name; typically this character will be a blank.

The *parameter list* contains one or more parameters that specify operands for the command. It is required in some commands, but is optional or prohibited in others.

Normally, you must separate the parameter list from the command name by one or more blanks as *delimiters*. Within the list, any delimiter can be surrounded by any number of blanks, permitting a free and flexible command format.

MPE permits both decimal and octal numbers as command parameters. You can distinguish the two by preceding the octal number with a percent sign (%).

The end of each command is indicated by the end of the record on which it appears — for example, a *carriage return* for terminal input or the *end of the card* containing the command for card input. If the last non-blank character of the record is an ampersand (&), this signifies a continuation character and the command is continued onto the next record.

NOTE

When you are running programs in batch job mode, bear in mind that MPE scans the entire record of each card image; thus no characters are ignored.

KEYWORD PARAMETERS

The meaning of a keyword parameter group is independent of its position in the list of parameters; thus you can enter keyword groups in any order with respect to each other. A *keyword group* consists of a keyword that denotes its meaning, optionally followed by an equal sign and one or more sub-parameters. Each keyword group is preceded by a semicolon. When more than one sub-parameter appears in a group, they are separated from each other by commas. All delimiters can optionally be preceded or followed by blanks. The following example shows a :STORE command containing a keyword parameter (SHOW).

:STORE PROG1,PROG2;*MYTAPE;SHOW

CONTINUATION CHARACTERS

When the length of a command exceeds one record, you may enter an ampersand (&) as the last non-blank character of this record and continue the command on the next record. In this case, the next record must begin with a colon (supplied automatically by MPE in a session but entered by you in a batch job).

You can continue commands for up to 268 characters, including prompting colons and continuation ampersands. In continuing a command onto another line, you must not divide any word.

MPE does not begin interpretation of a command until the last record of the command is read. It then joins all records comprising the command and replaces all prompt characters and continuation ampersands with blanks.

COMMAND ERRORS

If you make an error while entering a command, MPE informs you of this through a message printed on your standard list device. You then can re-enter the command or correct it with the MPE :REDO command (see the *MPE Commands Reference Manual*). Messages and their meanings are described in the *MPE Error Messages Manual*.

EXECUTING COMMANDS PROGRAMMATICALLY

In addition to entering commands directly through your standard list device, MPE allows you to execute many of them from within programs. You do this by calls to the COMMAND intrinsic. This intrinsic calls the Command Interpreter and passes the command images to it so that MPE can interpret and execute the command. The command specifications in Section II point out those commands which can be executed from a program. See the *MPE Ininsics Reference Manual* for a discussion of the COMMAND intrinsic.

:ALLOCATE

Loads a program or procedure

SYNTAX

<pre>:ALLOCATE [PROCEDURE ,]name PROGRAM</pre>
--

PARAMETERS

PROGRAM The program file indicated by *name* is allocated.

PROCEDURE The procedure indicated by *name* in SL.PUB.SYS is allocated. The default is PROGRAM.

name The name of the program file or procedure to be allocated. (REQUIRED PARAMETER)

USE

Available	in Session?	Yes
	in Job?	Yes
	in Break?	Yes
	programmatically?	No
Breakable?		No
Capability Required:		OP

OPERATION

This command loads the code segments for a program or procedure. These segments remain loaded until DEALLOCATED.

The user issuing the :ALLOCATE command must have execute access for any file referenced in the *name* parameter of this command.

Any external procedures referenced by a program being allocated by this command must reside in SL.PUB.SYS.

EXAMPLES

To permanently allocate a procedure identified as PROC1, residing in SL.PUB.SYS, enter:

```
:ALLOCATE PROCEDURE,PROC1
```

NOTE: Program files residing in the non-system domain (private volume) will not be allocated. Attempts to do so will result in LOAD ERR 92.

TEXT DISCUSSION

:ALTACCT

Changes the attributes of an existing account.

SYNTAX

```
:ALTACCT acctname
    [;PASS = [password]]
    [;FILES = [filespace]]
    [;CPU = [cpu]]
    [;CONNECT = [connect]]
    [;CAP = [capabilitylist]]
    [;ACCESS = [fileaccess]]
    [;MAXPRI = [subqueueuname]]
    [;LOCATTR = [localattribute]]
    [;VS = [volset:SPAN]]
    [;VS = volset : {ALT }
                   {SPAN}
```

PARAMETERS

<i>acctname</i>	The name of the account to be altered. (REQUIRED PARAMETER)
<i>password</i>	Account password (used for verifying log-on access only). If omitted, any existing password is removed.
<i>filespace</i>	Disc storage limit, in sectors, for the permanent files in the account. <i>Filespace</i> limit cannot be less than the number of sectors currently in use for the account. Default is unlimited filespace.
<i>cpu</i>	The limit on cpu time, in seconds, for the account. This limit is checked only when a job/session is initiated — thus, the limit never causes a job/session to abort. The maximum value permitted is 2,147,483,647 seconds. Default is unlimited cpu time.
<i>connect</i>	The limit on total session connect time, in minutes, allowed the account. This limit is checked only at log on. The maximum value allowed is 2,147,483,647 minutes. Default is unlimited connect time.
<i>capabilitylist</i>	List of capabilities, mutually separated by commas, permitted this account. Each capability is denoted by a two-letter mnemonic, as follows:

System Manager	=	SM
Account Manager	=	AM
Account Librarian	=	AL
Group Librarian	=	GL
Diagnostician	=	DI
System Supervisor	=	OP
Permanent Files	=	SF
Access of non-sharable		
I/O devices	=	ND
Use Volumes	=	UV
Create Volumes	=	CV
Use Communications	=	CS
Subsystem		

Process Handling	=	PH
Extra Data Segments	=	DS
Multiple RINS	=	MR
Privileged Mode	=	PM
Interactive Access	=	IA
Local Batch Access	=	BA

Default is AM, AL, GL, SF, ND, IA, BA.

fileaccess

File security specifications, entered as follows:

R	ANY
L	AC
A	: GU
W	AL
X	GL
	CR

where R, L, A, W, X specify modes of access by types of users (ANY, AC, GU, AL, GL, CR) as follows:

R	=	Read
L	=	Lock (allows exclusive access to file)
A	=	Append (implicitly specifies L also)
W	=	Write (implicitly specifies A and L also)
X	=	Execute

Two or more modes may be specified if they are separated by commas.

The user types are specified as follows:

ANY	=	Any user
AC	=	Member of this account only
GU	=	Member of this group only
AL	=	Account librarian user only
GL	=	Group librarian user only
CR	=	Creating user only

Two or more user types may be specified if they are separated by commas.

The default is no security restrictions at the account level.

subqueueuname

Name of the subqueue of highest priority that can be requested by any process of any job/session in the account, specified as XS, where x is A, B, C, D, or E. Default is CS.

localattribute

Local attribute of the user, as defined at the installation site. This is a double-word of arbitrary meaning which might be used to further classify users. While it is not involved in standard MPE security provisions, it is available to processes through the WHO intrinsic for use in the programmer's own security provisions. Default is double-word 0 (null).

:ALTACCT

volset:SPAN

Volset is a volume set or class reference which, when fully qualified, is in the form

ucsid.groupname.acctname

where *ucsid* refers to a previously-defined volume set or class definition.

SPAN indicates that the *acctname* is to be inserted in the accounting directory of the specified volume set (*volset*). The specified volume set must have been previously mounted (via a MOUNT command) for the SPAN operation to succeed.

volset:ALT

ALT directs the altering of an account or group entry on the specified volume set. ALT is useful only if it is necessary to alter account and group file space limits for entries that have already been spanned.

USE

Available	in Session?	Yes
	in Job?	Yes
	in Break?	Yes
	programmatically?	Yes
Breakable?		No
Capability required:		SM

OPERATION

This command changes the attributes of an existing account. When altering the *capabilitylist* for the SYS account, the SM capability cannot be removed. If *acctname* is SYS, and the file-access parameter is omitted, the following default security is assigned;

R, X: ANY; A, W, L: AC

:ALTACCT

When an entire keyword parameter group is omitted from the :ALTACCT command, that parameter remains unchanged for the account. When a keyword is included but the corresponding parameter is omitted (as in ;PASS=), the default value is assigned as follows:

Parameter	Default Values
<i>password</i>	No password
<i>filespace</i>	Unlimited
<i>cpu</i>	Unlimited
<i>connect</i>	Unlimited
<i>capabilitylist</i>	AM, AL, GL, SF, ND, IA, BA (All accounts except SYS)
	SM, AM, AL, GL, DI, OP, SF, ND, PH, DS, MR, PM, IA, BA (SYS account only)
<i>fileaccess</i>	R, A, W, L, X: AC (All accounts except SYS)
	R, X: ANY; A, W, L: AC (SYS account only)
<i>subqueue</i>	CS subqueue
<i>localattribute</i>	Double-word 0 (null)

When changing one capability in a *capabilitylist* presently containing several non-default values, you must re-specify the entire new *capabilitylist*, not just the changes parameter. Also, users within the account who have the non-default capabilities may have to be modified.

Any value changed through the :ALTACCT command becomes effective the next time MPE is requested to check this value; if an attribute is taken away from an account, users of this account currently running with that attribute will retain it until again logging on. For this reason, it is recommended that all account users be advised of all changes in advance.

EXAMPLE

To change an account named AC2 so that its *password* is GLOBALX and its *filespace* is limited to 50,000 sectors, enter:

```
:ALTACCT AC2;PASS=GLOBALX;FILES=50000
```

TEXT DISCUSSION

Page 4-5.

:ALTGROUP

Changes one or more attributes of a group.

SYNTAX

```
:ALTGROUP groupname
    [;PASS = [password]]
    [;CAP = [capabilitylist]]
    [;FILES = [filespace]]
    [;CPU = [cpu]]
    [;CONNECT = [connect]]
    [;ACCESS = [fileaccess]]
    [;VS = [volset[: {ALT
                        SPAN}]]]
```

PARAMETERS

groupname Specifies the name of the group whose attributes are to be changed. (REQUIRED PARAMETER)

password The new password to be assigned to the group. (This password is used to verify log-on access only.) If omitted, any existing password is removed.

capabilitylist Specifies the list of capabilities permitted this group. Each capability is denoted by a two-letter mnemonic, as follows:

Process Handling	=	PH
Extra Data Segments	=	DS
Multiple RINs	=	MR
Privileged Mode	=	PM
Interactive Access	=	IA
Local Batch Access	=	BA

Two or more capabilities may be specified if they are separated by commas.

Default is IA, BA.

filespace Disc storage limit, in sectors, for the permanent files of the group. A group's *filespace* cannot be specified as greater than the corresponding limits currently defined for the group's account, nor can it be changed to be less than the number of sectors currently allocated for the group. However, an account's *filespace* can later be changed so that some of its groups are left with limits that exceed the new account limits. Default is unlimited file space.

:ALTGROUP

cpu

The limit on total cpu time, in seconds, for the group. This limit is only when a job or session is initiated — thus, the limit never causes a job/session to abort. The maximum value permitted is 2,147,483,647 seconds. A group's cpu limit cannot be specified as greater than the corresponding limit currently defined for the group's account. However an account's cpu limit can be changed later so that some of its groups are left with a limit that exceeds the new account limits. Default is unlimited cpu time.

connect

The limit on total session connect time, in minutes.

fileaccess

File security specifications, entered as follows:

$$\left\{ \begin{array}{c} R \\ L \\ A \\ W \\ X \end{array} \right\} : \left\{ \begin{array}{c} ANY \\ AC \\ GU \\ AL \\ GL \\ CR \end{array} \right\}$$

where R, L, A, W, X specify modes of access by types of users (ANY, AC, GU, AL, GL, CR) as follows:

R = Read
L = Lock (allows exclusive access to file)
A = Append (implicitly specifies L also)
W = Write (implicitly specifies A and L also)
X = Execute

Two or more modes may be specified if they are separated by commas.

The user types are specified as follows:

ANY = Any user
AC = Member of this account only
GU = Member of this group only
AL = Account librarian user only
GL = Group librarian user only
CR = Creating user only

Two or more user types may be specified if they are separated by commas.

Default is R, A, W, L, X, S : GU (all groups except PUB); or R, X : ANY; A, W, L, S : AL, G, U (PUB group only).

volset:SPAN

Volset is a volume set or class reference which, when fully qualified, is in the form

vcsid.groupname.acctname

where *vcsid* refers to a previously-defined volume set or class definition.

If *volset* is different from the old volume set, and the old volume set is the system set, then the old volume set must be examined for the presence of files belonging to *groupname*. If no such files are found, the command will succeed, and the group is reassigned to *volset* as its new home volume set.

:ALTGROUP

If *volset* is omitted from the VS= parameter, the group will be reassigned to the system volume set. If the old volume set already is the system volume set and contains files belonging to *groupname*, the command will fail (that is, nothing is altered).

It is permissible to reassign a group to a different volume set regardless of the presence of files belonging to *groupname*, so long as the old volume set is not the system volume set and that *groupname* is not currently bound (either explicitly via the MOUNT command or implicitly via the FOPEN intrinsic) to its home volume set.

SPAN indicates that *groupname* is to be inserted in the accounting directory of the specified volume set (*volset*). The specified volume set must have been previously mounted (via the MOUNT command) for the span operation to succeed.

volset:ALT

ALT directs the altering of an account or group entry on the specified volume set. ALT is useful only if it is necessary to alter account and group file space limits for entries that have already been spanned.

USE

Available	in Session?	Yes
	in Job?	Yes
	in Break?	Yes
	programmatically?	Yes
Breakable?		No
Capability required:		AM

OPERATION

This command changes one or more attributes of a group. When an entire parameter is omitted from an :ALTGROUP command, the corresponding value for the group remains unchanged. When a keyword is included but the corresponding parameter is omitted (as in ;PASS=), the default value is assigned as follows:

Parameter	Default
<i>password</i>	Null (no password)
<i>capabilitylist</i>	IA, BA (except PUB.SYS)
<i>filespace</i>	Unlimited
<i>cpu</i>	Unlimited
<i>connect</i>	Unlimited
<i>fileaccess</i>	R, A, W, L, X, S: GU (All groups except PUB) R, X: ANY; A, W, L, S: AL, G, U (PUB group only)

:ALTGROUP

When a parameter is modified through :ALTGROUP, it immediately takes effect in the directory but does not apply to current accesses under the group; thus, if an attribute is taken away from a group, users of the group currently running with that attribute retain it until again logging on. For this reason, it is recommended that all group users be advised of the change in advance.

EXAMPLE

To assign a new password of PASS2 to a group named GROUPX, enter:

:ALTGROUP GROUPX;PASS=PASS2

TEXT DISCUSSION

Page 5-2.

:ALTUSER

Parameter	Default Values
<i>password</i>	Null (no password)
<i>capabilitylist</i>	SF, ND, IA, BA (provided the account has these capabilities)
<i>subqueueuname</i>	CS
<i>localattribute</i>	Null (double-word 0)
<i>homegroupname</i>	None (no home group). If a user has no homegroup assigned, he must specify a log-on group when initiating a job or session.

When a parameter is modified with the :ALTUSER command, it takes effect immediately in the directory, but does not apply to users currently logged on; it will take effect for the next log on by such users. For this reason, it is recommended that the users involved be advised of the change in advance. It is not recommended that the *capabilitylist* or *homegroupname* of the MANAGER.SYS user be altered.

EXAMPLE

Suppose an account's capabilities are AM, AL, GL, SF, ND, PH, DS, MR, IA, BA. To change the capabilitylist of the user JONES from IA, BA, SF, PH, DS to include the Multiple RIN capability (MR), enter:

```
:ALTUSER JONES;CAP=IA,BA,SF,PH,DS,MR
```

TEXT DISCUSSION

Page 5-4.

:ALTVSET

Modifies volume set definitions.

SYNTAX

```
:ALTVSET vsname
      [;ADDCLASS = vcname:vcname [ ,vcname] ... [ ,vcname] ]
      [;EXPANDCLASS = vcname:vcname [ ,vcname] ... [ ,vcname] ]
      [;EXPANDSET = vcname:type [ ,vcname:type] ... [ ,vcname:type] ]
```

PARAMETERS

- vsname* Existing volume set name. MPE will implicitly reference *vsname* as *vsname.groupname.acctname*, where *groupname* and *acctname* are the log-on group and account. (REQUIRED PARAMETER)
- vcname:vcname* Volume class name, consisting of up to eight alphanumeric characters, beginning with a letter. Each volume class consists of a volume class name and an associated list of volume names *vcname*. The list of volume names must be a subset of the volumes comprising the volume set, and and one of the volume names must be that of the volume set's master volume.
- ;ADDCLASS Add a volume class and an associated list of volume names. The list of volume names must be a subset of the volumes comprising the volume set and one of the volume names must be that of the volume set's master volume.
- ;EXPANDCLASS Add names of new members in the volume class. These new members can only be members of already existing classes of the parent volume set.
- ;EXPANDSET Add names of new members in the volume set and types of devices required to accommodate the new members. Total members in a volume set may not exceed eight. The type must be specified with each volume member name to define the type of disc drive. Types of disc drives that may be specified are HP7905, HP7906, HP7920, and HP7925.

USE

Available	in Session?	Yes
	in Job?	Yes
	in break?	Yes
	programmatically?	Yes
Breakable?		No
Capability Required:		SM, or AM with CV

:LISTUSER

USE

Available	in Session?	Yes
	in Job?	Yes
	in Break?	Yes
	programmatically?	Yes
Breakable?		Yes. Aborts.
Capability Required:		AM or SM

OPERATION

This command lists the attributes currently assigned to users. An Account Manager may list all users in his account only; the System Manager may list all users in all accounts. Private volume information (volume set names) also is listed. The volume sets need not be mounted for this information to be listed. A sample listing and explanation of the octal decoding is given in Appendix D.

EXAMPLE

To list the attributes of the user named CLANCY in the account named MGT, enter:

```
.:LISTUSER CLANCY.MGT
```

Note that if the command is entered by an Account Manager, MGT must be his own account.

TEXT DISCUSSION

Page 5-9.

:NEWACCT

Creates a new account and an associated Account Manager and Public Group.

SYNTAX

```
:NEWACCT acctname,mgrname  
  [;PASS = [password]]  
  [;FILES = [filespace]]  
  [;CPU = [cpu]]  
  [;CONNECT = [connect]]  
  [;CAP = [capabilitylist]]  
  [;ACCESS = [fileaccess]]  
  [;MAXPRI = [subqueueuname]]  
  [;LOCATTR = [localattribute]]  
  [;VS = [volset:SPAN]]
```

PARAMETERS

acctname Name to be assigned to the new account. (REQUIRED PARAMETER).

mgrname Name of the account manager; this is always the first user created under the account. He receives the following attributes:

User password	No password.
Capability list	Same as account's capabilities.
Scheduling priority	Same as account's maximum priority. Local attribute. Same as account's.
Home group	PUB.

The attributes of an Account Manager may be changed later with the :ALTUSER command. In no case, however, is this user granted effective attributes greater than those of the account. (REQUIRED PARAMETER)

password Account password, used for verifying log-on access only. Default is no password assigned.

filespace Disc storage limit, in sectors, for the permanent files of the account. The maximum value permitted is 2,147,483,647 sectors. Default is unlimited *filespace*.

cpu Limit on total cpu time, in seconds, for this account. This limit is checked only when a job/session is initiated — thus, the limit never causes a job/session to abort. The maximum value permitted is 2,147,483,647 seconds. Default is no limit is assigned.

connect Limit on total session connect time, in minutes, allowed the account. This limit is checked only at log-on time. The maximum value allowed is 2,147,483,647 minutes. Default is no limit is assigned.

EXAMPLE

To define a new user named LHSMITH, assign a password of SMITTY, and a homegroup of HOMEGPX, enter:

```
:NEWUSER LHSMITH;PASS=SMITTY;HOME=HOMEGPX
```

TEXT DISCUSSION

Page 5-4.

:NEWVSET

Defines private volume sets and classes.

SYNTAX

```
:NEWVSET vsname  
      ;MEMBERS = vname:type [, vname:type, ... [vname:type]  
      [ ;CLASS = vcname:vname [, vname, ... [, vname]]
```

PARAMETERS

- vsname* Volume set name, consisting of from one to eight alphanumeric characters, beginning with a letter. This name is also given to the master volume of the set. MPE will implicitly reference *vsname* as *vsname.groupname.acctname*, where *groupname* and *acctname* are the log-on group and account. (REQUIRED PARAMETER)
- vname:type* Names of members of the volume set and the types of devices on which the members will reside. A maximum of eight volume names may be specified. The list of volume names must include the Master volume set name. The type must be specified with each volume member to define the type of disc required to accommodate the volume. Types of disc drives that may be specified are HP7905, HP7906, HP7920, and HP7925.
- vcname:vname* Volume class name, consisting of from one to eight alphanumeric characters, beginning with a letter. Each volume class consists of a volume class name and an associated list of volume names *vname*. The list of volume names must be a subset of the volumes comprising the volume set, and one of the volume names must be that of the volume set's master volume.

USE

Available	in Session?	Yes
	in Job?	Yes
	in Break?	Yes
	programmatically?	Yes
Breakable?		No
Capability Required:		SM, or AM with CV

OPERATION

The :NEWVSET command creates private volume sets and classes. Once a volume set or volume class is defined, its definition is kept on disc in a volume set definition entry. A physical volume set is not created at the time the volume set is defined, only the members of the volume set and the corresponding storage types are defined to MPE.

The *tpri* parameter determines the priority assigned to a user process when that process resumes execution after reading terminal input. This parameter should be set at or near 150. To favor response to system commands, set *tpri* somewhat larger (for instance, at 152 or 153). Significantly larger *tpri* values yield unpredictable results, depending on system demand and configuration.

The *cpri* parameter specifies the lowest priority that the system can assign to a CS process whose time quantum expires. When *cpri* is close to *tpri*, long transactions are favored over short ones in the CS subqueue. When *cpri* is far from *tpri*, short transactions are generally favored over long ones in this subqueue. Setting *cpri* less than *tpri* or greater than *dpri*, however, produces unpredictable results.

The *dpri* parameter indicates the lowest priority that the system can grant a DS process whose time-quantum expires. With *dpri* close to *tpri*, DS processes receive increased throughput, possible at the expense of response to CS processes. As the distance between *cpri* and *dpri* is increased, the impact of a DS process on CS processes is decreased, CS process response may improve, and DS process throughput may be somewhat reduced.

EXAMPLE

To change the quantum to 500 milliseconds, enter:

:QUANTUM 500

TEXT DISCUSSION

Page 6-107.

:REPORT

Displays accounting information for log-on account and group.

SYNTAX

```
:REPORT groupset [,listfile]  
[;VS = volset]
```

PARAMETERS

<i>groupset</i>	Specifies the accounts and groups for which information is to be listed. The permissible entries and the capability required (shown in parentheses) are as follows: Account Manager is shown as AM; System Manager as SM.
<i>groupdesig</i>	Reports on the specified group in the log-on account. Standard user can only specify his log-on group.
@	reports on all groups in the log-on account (AM or SM).
<i>groupdesig</i> . <i>acctdesig</i>	Reports on the specified group in the specified account (SM).
@. <i>acctdesig</i>	Reports on all groups in the specified account (SM).
@.@	Reports on all groups in all accounts (SM).
	Default: For standard user: his own group For Account Manager: All groups in his own account. For System Manager: All groups in all accounts.
<i>volset</i>	Directs the reporting of accounting information from the specified volume set.

NOTE

The characters @, #, and ? can be used as “wild card” characters in the groupset parameter. These wild card characters have the following meanings:

- @ — specifies zero or more alphanumeric characters.
- # — specifies one numeric character.
- ? — specifies one alphanumeric character.

The characters can be used as follows:

- n*@ List all groups starting with the character *n*.
- @*n* List all groups ending with the character *n*.
- n*@*x* List all groups starting with the character *n* and ending with the character *x*.
- n*###..*#* List all groups starting with the character *n* followed by up to seven digits.
- ?*n*@ List all groups whose second character is *n*.

:REPORT

- n?* List all two-character groups starting with the character *n*.
- ?n* List all two-character groups ending with the character *n*.
- listfile* Actual file designator of output file to which information is to be written. Output may be re-directed with a :FILE back reference as follows:
- :FILE LIST1;DEV=LP
:REPORT ,*LIST1
- Default is \$STDLIST.

USE

Available	in Session?	Yes
	in Job?	Yes
	in Break?	Yes
	programmatically?	Yes
Breakable?		Yes. Aborts.
Capability Required:		AM or SM

OPERATION

Outputs total accounting information logged against groups and accounts. For the standard user, this information covers his own group only; an Account Manager may specify all groups in his account; and the System Manager may specify all groups in all accounts.

The information includes usage counts and limits for permanent file space (in sectors), cpu time (in seconds), and session connect time (in minutes). The file space usage count reflects file space used as of the present time, but the cpu time and connect time usage reflects these counts as they were immediately prior to the start of the current job.

The type of output written to *listfile* depends on the type of file (ASCII or binary) specified or implied. If *listfile* is an ASCII file, a standard ASCII listing is produced; on this listing, an unlimited quantity is denoted by a double asterisk (**). If *listfile* is a binary file (typically used to help in automatic processing of the report data), a 17-word record is written for each account/group.

On both ASCII and binary listfiles, the entry for each account is followed immediately by the entries for all of its groups.

EXAMPLE

To obtain accounting information for your group, enter the :REPORT command, as follows:

:REPORT

TEXT DISCUSSION

:RESETACCT

Resets to zero the running counts of cpu time or connect time accumulated by an account, and all groups within that account.

SYNTAX

<pre>:RESETACCT [@ ,CPU acctname ,CONNECT]</pre>

PARAMETERS

- @ Specifies that counters for all accounts/groups are to be reset. Default.
- acctname* Specifies the name of a particular account and group. Default is @.
- CPU Specifies that only the cpu usage counter is to be reset. Default is both the cpu and connect time counters are reset.
- CONNECT Specifies that only the connect time usage counter is to be reset. Default is both the cpu and connect time usage counters are reset.

USE

Available	in Session?	Yes
	in Job?	Yes
	in Break?	Yes
	programmatically?	Yes
Breakable?		No
Capability Required:		SM

OPERATION

This command resets to zero the running counts of cpu or connect time accumulated by an account, and all groups within that account.

If all parameters are omitted, all counters (except File Space) for all accounts and their groups are reset.

EXAMPLE

To reset the cpu use counter for all accounts in the system, enter:

```
:RESETACCT @, CPU
```

TEXT DISCUSSION

Page 4-7.

GROUP LIBRARIAN ATTRIBUTE (GL). Similar to the Account Librarian Attribute, but limits the special file-access modes allowed the user to his home group. This attribute is assigned by users with the Account Manager Attribute. It could be used, for example, where it is desired that only one user can have the capability to alter files within a particular group. This user could be assigned the Group Librarian Attribute and his access modes could be made greater than those of other users.

DIAGNOSTICIAN ATTRIBUTE (DI). Permits the user to run certain device and cpu verification programs. Normally, the Hewlett-Packard service representative (Customer Engineer) is the only user who may need this attribute. The diagnostician attribute is assigned by users with the Account Manager attribute.

STANDARD USER. All other users not specifically assigned one or more of the above user attributes fall into the class of Standard User by default.

FILE ACCESS ATTRIBUTES

The file access attributes determine whether the user has the capability to:

- Save user files permanently (SF). This means that those users who do not have this capability cannot use the :BUILD, :SAVE, and :RESTORE commands (described in the MPE Commands Reference Manual). Nor can these users use the FOPEN and FCLOSE (permanent) intrinsics (described in the MPE Intrinsics Reference Manual). Users who do not have this capability can, however, open job/session temporary files, but such files will be deleted automatically when the job/session is terminated.
- Use non-sharable devices (ND). This attribute is needed to use real devices other than disc. The user will have complete and absolute control of the device. Some examples are card readers, line printers, magnetic tape units, plotters, etc. It should be noted that this attribute is not necessary for the standard job/session standard input and list devices.
- Use private disc volumes (UV). This attribute is needed to access files residing on private volumes.

CAPABILITY-CLASS AND PROGRAM ATTRIBUTES

These attributes define the general resources available to a user and the programs he writes and runs.

Each time someone runs a program, MPE automatically assigns that program the user and file-access attributes of that user. But the capability-class attributes assigned to the program are designated by the user who originally prepares the program; they are passed to the MPE Segmenter as parameters of the command that prepares the program. If the preparing user does not designate capability-class attributes for his program, MPE assigns, by default, the standard capabilities possessed by that user — interactive access (IA), batch access (BA), or both. (When programs prepared from passed files or job temporary files are run, they are assigned the standard capabilities (interactive and/or batch access) possessed by the user who runs them.)

If the program resides on a permanent file, the program's capability-class attributes should not exceed those defined for the *group* to which the program file belongs. If they do, the user will not be able to run the program when he attempts to do so.

Because the capability set is associated with the entire set of code segments being run (and hence with the process running them), all procedures, subprograms, and subroutines on those code segments have the same capability. For the same reason, a *user* need not have the same capabilities as the *programs* he runs.

The capability-class and program attributes are:

- **Extra Data Segments (DS).** This attribute allows users and programs to manage (create) extra data segments. Normally, a programmer uses these data segments for temporary storage of large amounts of data; thus his program global data area remains relatively small. The extra data segment is purged at the termination of the program. Extra data segments are managed through the GETDSEG, FREEDSEG, DMOVIN, DMOVOUT, and ALTDSEG intrinsics, which are discussed in the *MPE Intrinsics Reference Manual*.
- **Privileged Mode (PM).** The Privileged Mode attribute allows a user or program to access all MPE resources, including intrinsics, system tables, and privileged cpu instructions. Provided the programmer has this capability, he can run programs in a permanently privileged mode or a temporarily privileged mode through the GETPRIVMODE, GETUSERMODE, and SWITCHDB intrinsics. Also, the CREATE and GETPRIORITY intrinsics may be used. These intrinsics are discussed in the *MPE Intrinsics Reference Manual*.

IMPORTANT NOTE

The normal checks and limitations that apply to the standard users in MPE are bypassed in privileged mode. It is possible for a privileged mode program to destroy file integrity, including the MPE operating system software itself. Hewlett-Packard will investigate and attempt to resolve problems resulting from the use of privileged mode code. This service, which is not provided under the standard Service Contract, is available on a time and materials billing basis. However, Hewlett-Packard will not support, correct, or attend to any modification of the MPE operating system software.

- **Multiple RIN (MR).** This attribute allows the acquisition of more than one global RIN for a single process. Effectively, it allows exclusive use of more than one system resource simultaneously. You should be aware that resource deadlocking can occur if multiple resources are not managed correctly. This may seriously degrade system performance.

VOLUME SET/CLASS DEFINITION

Volume sets and classes are defined (created) by System Managers (and by Account Managers who have the Create Volumes (CV) capability). Each volume set, and volume class within the set, is distinguished by a unique name assigned with the *vsname* (volume set name) and *vcname* (volume class name) parameters of the :NEWVSET command. Once defined, a volume set or volume class can be referenced by any user with the Use Volumes (UV) capability.

A volume set/class definition is of the form:

vsname.groupname.acctname

or

vcname.groupname.acctname

where

vsname — is the volume set name, consisting of from one to eight alphanumeric characters, beginning with a letter.

vcname — is the volume class name, consisting of from one to eight alphanumeric characters, beginning with a letter.

groupname.acctname — are the names of the group and account to which the volume set/class is to be assigned.

To define a volume set having the following characteristics

group	GRP1
account	ACCT1
volume set name	USERSET1
members	MEM1, MEM2, MEM3
type	HP 7920
classes	CLASS1:MEM1, MEM2, CLASS2:MEM1, MEM3

you would log on with

username.ACCT1,GRP1 (Must have CV capability)

and enter:

```
:NEWVSET USERSET1;MEMBERS=USERSET1:HP7920, MEM1: HP7920&  
: MEM2: HP7920;CLASS=CLASS1:USERSET1, MEM1, CLASS2:USERSET1, MEM2
```

ALTERING A VOLUME SET DEFINITION

To alter home volume set USERSET1 in order to add a new class, CLASS3, with a new member MEM4, you would log on with

username.ACCT1.GRP1

and enter:

```
:ALTVSET USERSET1;ADDCLASS=CLASS3:USERSET1,MEM4;ADDVOL=&  
: MEM4:HP7920
```

DELETING A VOLUME SET DEFINITION

To delete the volume set USERSET1, you would enter:

```
:PURGEVSET USERSET1
```

MPE will request verification that USERSET1 is to be purged by displaying the following message:

VOLUME SET/CLASS DEFINITION USERSET1 TO BE PURGED (YES/NO)

The volume set will not be purged if any member is in use when the :PURGEVSET command is entered.

SYSTEM SUPERVISOR CAPABILITIES

SECTION

VI

The System Supervisor (OP) capability allows a user to control the general operation of the system by:

- Reconfiguring the system (SYSDUMP).
- Storing all user files on the system offline on magnetic tape or serial disc.
- Creating magnetic tape or serial disc files for backing up and/or modifying the system.
- Displaying certain system information for the purpose of determining the optimal performance.
- Permanently allocating/deallocating programs in virtual memory.
- Exercising scheduling control over processes in order to obtain the best system performance.
- Managing the system log files through the logging facility.

The System Supervisor (OP) capability differs from the System Manager (SM) capability (which is mostly concerned with the accounting system) in that the System Supervisor is generally responsible for:

- Managing the entire operating system software on a day-to-day basis.
- Ensuring that file offline storage for all users is accomplished on a regular basis.

In order to perform these functions, the System Supervisor uses the following commands:

```
:ALLOCATE
:DEALLOCATE
:QUANTUM
:RESTORE (For all files in system)
:RESUMELOG
:SHOWLOG
:SHOWQ
:STORE (For all files in system)
;SWITCHLOG
:SYSDUMP
```

Additionally, the System Supervisor is responsible for the system initialization procedure when modification to the operating system is to be made during start-up procedure. (The start-up procedure normally is the Console Operator's responsibility — except when operating system modifications are to be made.)

Hewlett-Packard furnishes MPE as a set of prepared program files on magnetic tape. In this initial configuration performed at the factory by Hewlett-Packard, the following are included:

- One user with System Manager and System Supervisor capabilities (plus all other standard and optional capabilities from the MPE capability set). This user is identified by the username MANAGER.

- One user with all the capabilities of the MANAGER user except the System Manager (SM) capability. This user is identified by the username FIELD.
- Two system accounts. The accounts are SYS and SUPPORT. The MANAGER user is associated with the SYS account and the FIELD user is associated with the SUPPORT account.
- One public group (PUB) belonging to the system account SYS.
- Numerous groups which are associated with the account SUPPORT. There is one group for each supported software product. Each groupname is defined as HP XXXXX where XXXXX is the Hewlett-Packard product number of the appropriate software product.

In addition, magnetic tapes are provided to load pertinent subsystems (may be on the same magnetic tape as the operating system), and perform stand-alone cpu and non-cpu diagnostics.

SERIAL DISC VOLUMES

In addition to the magnetic tape capability for offline storage, you can store files offline on serial discs.

To MPE, the discs appear to be magnetic tape drives, and thus provide fast backup and recovery capability when used as an alternative to magnetic tape in SYSDUMP, STORE, and RESTORE activities.

Any moving-head disc supported by private volumes can be designated for serial use either during a SYSDUMP or during an initialization (cold load) dialog. First, the disc is assigned to a CLASS by logical device number and then the CLASS is designated a serial disc class in response to a special prompt. These dialogs are explained later in this section.

NOTE

Only the upper (removable) platter of a HP 7905 or 7906 disc drive may be used as a serial disc or private volume. The lower (fixed) platter must be either configured in the system domain or not configured.

Packs mounted on a serial disc must be initialized for serial use by the Console Operator using the VINIT subsystem. Initialization places a special mark in the disc label which is subsequently used for identification by MPE. When MPE recognizes a pack with this mark, it sends a mount notification message to the system console. See Appendix J for a discussion of serial disc initialization.

SYSTEM CHANGES AND FILE STORAGE

Once the system is started (by the Console Operator) and some accounting structure and files exist, the System Supervisor can call the MPE Configurator program :SYSDUMP to:

1. Perform a system and file backup to magnetic tape or serial disc, by:
 - a. Copying the operation system only.
 - b. Copying the operating system plus the system directory (accounting structure).

- c. Copying the operating system, accounting structure, and all files in a given fileset description that have been altered since a given date.
 - d. Copy the operating system, accounting structure, and all files on the system.
2. Change the operating system as well as any option provided in 1b through 1d above.

NOTE

A duplicate of the running system on magnetic tape or serial disc is the only way that you can provide backup. If no such backup exists and a system failure occurs, you must execute one of the supported utilities in order to retrieve files. You also must contact Hewlett-Packard in order to obtain another copy of the operating system. For these reasons, it is highly recommended that a backup of the system and of all the files on the system be accomplished on a regular basis.

Regardless of whether the Configurator (:SYSDUMP) is used to reconfigure MPE or to make an identical copy of it, the running system is not altered; any changes made apply only to the copy of the system written to magnetic tape or serial disc.

You will need certain background information when using the Configurator (:SYSDUMP) to modify the operating system. The information you will need depends on the types of changes to be made. Changes are made through an interactive dialog in session mode between you and the Configurator. The following paragraphs and Appendix C of this manual provide background information for those portions of the dialog which are not self-evident.

CHANGING MAIN MEMORY SIZE

MPE III runs on HP 3000 Computers with main-memory of the following sizes, where K = 1024 bytes:

256K	448K	1024K
320K	512K	1536K
384K	768K	2048K

NOTE: The series type (II, III, or 33) determines which of these memory sizes are available.

The size specified by the user during configuration should be the actual size of main-memory delivered with the machine on which this MPE configuration is to run. This entry is required so that other configuration parameters (such as table sizes) that depend on main-memory size can be set up correctly.

The system maintains a special file (CONFDATA) located in the PUB group of the SYS account. This CONFIguration DATA file maintains a separate record of key information for each configurable main memory size. The Configuration program and the Initialization (start-up) program will access only the record that matches the main memory size specified by default or by the user. Unauthorized user access to the CONFDATA file could damage the system.

CHANGING INPUT/OUTPUT DEVICE CONFIGURATION

Every physical input/output device in the system is identified by a unique *logical device number*, ranging from 1 to 255. Input/output configuration consists of specifying this number and various other characteristics for each such device. Some of these characteristics, such as Device Reference Table (DRT) entry number and device unit number, described below, are determined by physical hardware connections made prior to system generation. Other characteristics, such as whether a device is interactive or duplicative, whether it can accept jobs and sessions, and the device class to which it belongs, are user options. When you are deleting or re-specifying devices already on the system, you can determine the characteristics of these devices by requesting a device characteristics listing during the re-configuration process. When you are adding a new device, you must know the hardware-dependent characteristics of the device and must also carefully determine those characteristics that are user options, as noted below. The characteristics that must be specified for each device are:

- Logical Device Number (LDN)

The logical device number is the value by which the MPE File Management System recognizes a particular device. For each device, this is a unique number ranging from 1 to 255. You may assign logical devices in any way you choose (except that system disc must be logical device number one). For example, assume there will be only three devices to configure on the system. They are: a disc, a magnetic tape, and a terminal. You could arbitrarily assign logical devices as follows:

Logical Device	Device Name
1 (Must be system disc)	Disc
4	Magnetic Tape
152	Terminal

Normally, you would assign logical devices in ascending order.

- Device Reference Table (DRT) Entry Number

Every device on the system is connected to a device controller. A particular controller may serve more than one device of the same type. There is an entry in the DRT in main memory that contains information about the driver and interrupt programs that serve an individual controller and its devices. Because each DRT entry is four words long, the size of the DRT, in words, is four times the total number of controllers.

The DRT is located in fixed-memory locations beginning at octal address 20. The maximum upper limit for the DRT is location 777₈, thus limiting the maximum number of four-word DRT entries to 124 (decimal) entries. This also limits the number of physical device controllers to 124.

Since each DRT entry is always four words long, it is convenient for the hardware to map controllers to DRT addresses simply by multiplying by four. Since the DRT begins at location 20_8 , the lowest controller (DRT entry) number is 4 ($20_8 / 4_8 = 4_8$). DRT entry numbers 0, 1, 2, and 3 do not exist. However, the memory locations octal 0 through octal 17, where DRT 0, 1, 2, and 3 would normally be located, are used by the operating system.

When re-configuring the system, you need to know the highest DRT entry number that can be assigned to a device. You determine this by adding four to the total number of controllers planned. This value may not exceed 127.

You also need to know the DRT entry number of any device to be added or deleted. This is a hardware-dependent value, ranging from 4 to 127. It is determined by a set of jumpers on the device controller board.

Since the DRT is a main memory table, it is not advisable to include more than two spare (unused) entries. This will keep the table size to the minimum required for efficient utilization of main memory.

- Unit Numbers

When a controller services only one device, that device is generally assigned a unit number of 0 (recognized by the associated driver). When the controller serves more than one device, each device is assigned a unique unit number (with respect to that controller) to distinguish it from others connected to the same controller. The unit number of any device is a hardware-dependent characteristic determined when the device is physically connected to its controller. The value ranges from 0 to a maximum number determined by the type of device controller.

- Software Channel Number

The input/output (I/O) system allows multiple controllers on a single hardware channel. The system will transfer data on only one controller per software channel at one time, and a queue is established on each channel for the I/O pending on other controllers. All controllers with the same channel number are assumed by MPE to be on the same software channel, even though physically they need not be on the same hardware channel to share the same software channel number. Thus you may deliberately assign several controllers to the same channel number as a method of preventing simultaneous transfers to a group of controllers.

- Option to Accept Job and Session Input Stream (J)

You can optionally specify that this device can accept the commands :JOB or :HELLO, and thus serve as a job/session input device.

For the purpose of this option, a :JOB is an input stream which has been completely defined prior to any input on a device. A session (:HELLO command) is an input stream of data defined as it is input by a user.

Note that this option provides for automatic recognition of the device by the operating system for either jobs or sessions. It should be noted also that sessions cannot be started unless this option as well as the *Interactive* option (defined below) is specified.

- Option to Accept Data from a Device (A)

The purpose of this option is to allow a job or session to acquire an auxiliary input device different from \$STDIN without operator intervention. In order to do this, the auxiliary device must be configured as a :DATA accepting device. For example, a session on a terminal could read cards from a card reader if the reader is configured as a Data Accepting device and the user entered the appropriate :DATA card as the first card of the data.

This option provides for automatic recognition of the device by the operating system. In other words, as in the example above, the :DATA card will be read by the operating system when the device is made ready. When the device is additionally spooled, the data also will be input immediately to a disc device file.

- Interactive Option (I)

Interactiveness is a characteristic of a device that requires human intervention for all input operations. This quality is necessary to establish the man/machine dialogue required to support a session.

In this regard, the option to accept job and session input streams (defined above) must also be specified. Note that an interactive device can support both jobs and sessions. When an interactive device is used as a :JOB device, the operating system assumes that there is a pre-defined input stream (i.e., there is no immediate human intervention available for error recovery). If a user is manually inserting the input stream and makes an error, the operating system will terminate the job.

- Duplicative Option (D)

A device is configured as duplicative if all input operations are echoed to a corresponding display without intervention by the operating system software. In general, devices which are interactive are also duplicative. The hardware design of the system is such that all input to a terminal device will be echoed back by the hardware to the display portion of the terminal. Thus the user can see what has been input to the system software. If a device has been configured as non-duplicative, the command interpreter and several subsystems (FCOPY, SPL, FTN, COBOL, BASIC, RPG) will "echo" back user input. An example of a device which should be configured as non-duplicative is a terminal with no self echo that will be used over a modem.

Some non-standard terminals have a self contained echo feature. If there is no switch available on the terminal to turn off this capability, the session logon will appear to be garbled because the system hardware is echoing back to the terminal and the terminal is echoing to itself. Once logon is attained, the user can depress the escape and semi-colon (ESC and ;) keys which will stop the system hardware from echoing the input back to the terminal.

If a device is configured as a job/session device and is also an interactive device, then, in general, the duplicative option should be specified.

- b. A class containing one or more serial input DATs is automatically assigned a DCAT of serial input if the remainder of the DATs in the class are input/output (either concurrent, non-concurrent, or both). For example, a normal ASR 33 TTY and a high speed paper tape photo reader. The TTY is normally a concurrent input/output device while the photo reader is always a serial input device. If a class of PTIN is assigned to the photo reader and the TTY, then the class PTIN is assigned a DCAT serial input (IN) only.
- c. A class containing one or more serial output DATs is automatically assigned a DCAT of serial output if the remainder of the DATs in the class are input/output (either concurrent, non-concurrent or both). For example, a card punch is always a serial output device (OUT). A magnetic tape is a non-concurrent input/output device (IN/OUT,NC). If a class of PUNCH is assigned to the card punch and the magnetic tape, then the class PUNCH will have a DCAT of serial output (OUT) only.
- d. For a class containing only concurrent input/output DATs, the Configurator will prompt to ask whether the DCAT should be serial input, serial output, concurrent input/output, or non-concurrent input/output. For example, when adding a new terminal to the configuration, you will be asked for the type of DCAT assignment since terminals can be concurrent input/output devices (IN/OUT,C).
- e. For a class containing only non-current input/output DATs, the Configurator will prompt to ask whether the DCAT should be serial input, serial output, or non-concurrent input/output. An example of this type would be when adding a new magnetic tape device to the configuration.
- f. For a class containing a mixture of concurrent and non-concurrent input/output DATs, the Configurator will prompt to ask whether the DCAT should be serial input, serial output, or non-concurrent input/output.
- g. A class containing any combination of DATs other than those mentioned above will be illegal. For example, a line printer is an output device (OUT). A card reader is an input device (IN). A class which would specify both devices for the class is illegal.
- h. A class containing devices all of the same type is assigned a DCAT of that same device type.

CHANGING SYSTEM TABLES AND QUEUE PARAMETERS

The sizes of various system tables, queues, and other values can be changed to permit you to make most efficient use of main memory and virtual memory. You can best determine what particular values are best for your installation by comparing the values supplied by Hewlett-Packard in the initial configuration with those later suggested by your own operational experience. A table of default values (those normally provided initially) appears in Appendix C. The System Supervisor should experiment with various parameters over a period of time in order to achieve best system performance.

Elements that can be changed are:

- The size of the following tables
 - a. Code Segment Table (CST)
The CST is one continuous main memory resident table. It is divided into the program and sharable areas by the system. Each entry is four words in length. Experimentation with both the sharable and program areas is advised in order to conserve main memory allocation.
 - b. Data Segment Table (DST)
This table is main memory resident. Each entry is four words in length. Experimentation with size is advised in order to conserve main memory allocation.
 - c. Process Control Block (PCB) Table
This table is main memory resident. Each entry is 16 words in length. Experimentation with size is recommended.
 - d. Memory Management Table (MTAB)
This table contains various information formats in five-word entries. It is main memory resident. Experimentation with size is recommended.

NOTE

In all of the tables above, setting any one table with a size which is too small will cause the operating system to fail. Experimentation with sizes should be done with caution.

- The maximum number of entries in
 - a. Input/Output Queue (IOQ)
This queue is main memory resident. Each entry is 11 words in length. For each particular I/O request, an entry is allocated. If devices are spooled, at least 15 entries for each spooled output device and 10 entries for each spooled input device are needed. Experimentation is advised. However, the absolute minimum number of entries recommended is 20 regardless of the configuration. Setting the number of entries too low for your configuration may cause the operating system to fail. Care should be used when experimenting with the number of entries.
 - b. User Controller Process (UCOP) Request Queue
This request queue resides in virtual memory. It is main memory resident only when needed by the system. Each entry in the queue is two words in length. Experimentation with size is advised. Setting the entry size to a low value can cause performance degradation of the operating system. Caution is advised when lowering the number of entries.
- The number of buffers
 - a. Terminal Buffers in the system
Terminal buffers are main memory resident. Each buffer is 16 words in length (30 characters — one word is used as a link). Set the number of buffers to about 5 times the actual number of terminals on the system.

NOTE: Terminal buffers in Series 33 systems are 32 words in length (60 characters).

b. System buffers in the system

System buffers are main memory resident. Each system buffer entry is 129 words in length. System buffers are used by the file management system and the input/output system to reduce the number of extra data segments required for any particular user. Experimentation with the number of entries may be done. The file system uses system buffers numbered above 8 (system buffers one through eight are not used by file system).

- The number of words on the Interrupt Control Stack (ICS)

This stack is main memory resident. The system Dispatcher executes from this stack. Additionally, the input/output system uses this stack for certain processing. Experimentation with ICS size should be done with extreme caution. An ICS whose size is too small will cause the operating system to fail.

- Timer Request List (TRL)

This list consists of 4 words per entry. The list is main memory resident. In general, the system places requests in this list in order to *delay* a process or some function for a specified amount of time. If the list is configured too small, the operating system will fail. Care should be taken when reducing the number of entries.

- The size of the breakpoint table

This a main memory resident table. Each entry is four words long. This table is used by the DEBUG facility to save the various breakpoint addresses for users. If you anticipate very little program debugging on your system, you may set the table size to some minimal value. The absolute minimum recommended for any system configuration is 12.

- The contents of the message catalog

This is the system data segment where MPE keeps its standard messages and error messages. The source file is CATALOG in the group PUB.SYS.

See Appendix G for a description of the MPE message system.

CHANGING MISCELLANEOUS VALUES RELATING TO LOG-ON TIME, RIN'S AND JOBS ALLOWED IN SYSTEM AND EXECUTION

You can change

- The currently-assigned global resource identification numbers (RIN's).
- The number of RIN's available in the RIN pool.

- The maximum number of global RIN's available.
- The time a user is allowed to successfully complete logging-on to the system when initiating a session.
- The maximum number of jobs allowed in execution at one time.
- The maximum number of sessions allowed in execution at one time.

NOTE

The number of jobs and sessions allowed in execution at one time may be overwritten by the console operator command = limit. But if the number of jobs plus the number of sessions you try to run is higher than the sum of maximum number of jobs and sessions defined at SYSDUMP time, you will get a system overload type 4.

- The default central processor time limit for jobs.

CHANGING LOGGING CHARACTERISTICS

You can change

- The elements (types of entries) being logged in the system log file. This includes disabling or enabling the logging facility itself.
- The size of blocks in the log file.
- The size of the log file.

CHANGING DISC ALLOCATION

You can alter the maximum number of disc sectors available for virtual memory. Note that these sectors are used for data-segment swapping only, since code segments are read directly from files and need not be written back to disc.

The maximum number of disc sectors available for the system directory also can be changed. This directory contains the addresses of all files, plus the accounting structure for all accounts, groups, and users in the system.

The most efficient values for virtual memory and system directory sizes depend on the installation and its use. See Appendix E.

The maximum number of spoolfile kilosectors and extent sizes also can be changed. Experimentation with the sizes is recommended. If a value is too small, the spooling facility will stop. Care should be exercised in setting a smaller value.

CHANGING SCHEDULING QUEUE

All processes competing for access to the central processor access it through the MPE Master Scheduling Queue. (Scheduling queues are described later in this section.) You can change the time quantum, in milliseconds, allowed the time-sharing class (CS and DS). The priority

ranges for this class also may be changed. Experimentation with the priorities can improve system performance. It also can degrade system performance. Changing the priorities should be done very cautiously. Note that 150 is highest priority and 250 is lowest. Also, the three priorities must be monotonically increasing.

CHANGING SEGMENT LIMITS

You can change the limits on code and data segments, as follows:

1. Maximum number of words allowed in any code segment. A useful rule of thumb is to set the maximum size to 5% of available memory but in no case less than 4096 words.
2. Maximum number of code segments per program file.
3. Maximum number of words allowed in any user process' stack. Obviously, the maximum number of words in a stack is highly installation dependent. However, through experience it has been found that installations/users are using:

Max Stack Size (words)	Environment
7000- 8000	School/students
12000-16000	Scientific/Engineers
26000-31232	Commercial

Note that smaller stack sizes increase multiprogramming performance.

4. Maximum number of words allowed in any extra data segment. A useful rule of thumb is to use 20% of the maximum number of words allowed in the user process stack. (See 3 above.)
5. Maximum number of data segments per process.
6. Default number of words initially assigned for a user's stack (Z-Q) area (when the user specified no value at program execution time). We recommend keeping this value as low as possible. The operating system will allow for dynamic increases of the user's stack up to the maximum allowable, if the program is PREPped with a MAXDATA parameter specified (see 3 above). In any case, the minimum recommended for any configuration is 800 words.

Generally-recommended values for initial configurations can be found in Appendix C. Over a period of time, the System Supervisor should develop the best values for his installation through experimentation.

CHANGING SYSTEM PROGRAMS AND SEGMENTS IN THE SYSTEM LIBRARY

You can replace system program files. You also can delete, add, and replace code segments in the System Library. During configuration, you can request a list of all code segments currently in the System Library. This list can be useful in finding the logical segment number of a system segment which returned an error to a user or user program.

USING THE :SYSDUMP COMMAND

The :SYSDUMP command can be entered at any time during a session. Prior to entering the command, however, a file reference to a serial storage device must be made. (If a disc drive is used, it must be a HP 7920 or HP 7925.) A file reference to a list device also can be made (optional).

NOTE: With Series 33 systems, the disc drive may be a HP 7902 flexible disc drive.

To begin dialog with the Configurator, the commands below could be used.

```
:FILE DUMP;DEV=TAPE
:SYSDUMP *DUMP
```

When the :SYSDUMP command is entered, the Configurator begins an interactive dialog with you by asking if you want to make any configuration changes. If the answer is NO, the Configurator copies the running system to the specified device (TAPE in this case). If the answer is YES, the Configurator continues its dialog.

NOTE: If \$NULL is specified as the output file, SYSDUMP will not write to any device. This may be useful in displaying the current system configuration.

NOTES CONCERNING DATA COMMUNICATIONS PRODUCTS

There are special considerations required when configuring one or more Data Communications Subsystems into your system.

Data Communications products currently available are as follows:

- DS/3000
- 2780/3780 Emulator (often called "the Emulator").
- MRJE/3000
- MTS/3000

NOTE: These Data Communications products are not supported on Series 33 systems.

For each of the above, the configurable items are:

DS/3000

1. A Hardwired Serial Interface (HSI); driver name CSHBSC0. An HSI is required for coaxial connection between computers. The HSI has up to four ports (HSI channels). Each port is configured with a different logical device number and corresponding port mask (note that only one port may be used at any one time).
2. A Synchronous Single-Line Controller (SSLC); driver name CSSBSC0. An SSLC is required for connection between computers over telephone lines.

3. A Communications Driver; name IODS0. For an HSI, the driver is configured up to four times, once for each HSI channel. For an SSLC, the driver is configured only once.
4. One or more pseudo terminals; driver name IODSTRM0. Because only one port on the HSI can be opened at a time, only one block of pseudo terminals need be configured. The block is automatically reallocated to a port when the port is opened. Thus one block of terminals serves all ports.

2780/3780 EMULATOR

At least one SSLC; driver name CSSBSC0.

MRJE/3000

1. At least one SSLC; driver names CSSBSC0 and CSSMRJE0. The first driver named during configuration (the default driver) must be CSSBSC0. The second driver, CSSMRJE0, must then be named as an additional driver in Steps 3.94 through 3.99 of the dialog.
2. Two pseudo line monitors; driver names IOMRJE0 and IOMRJE1.
3. One pseudo terminal; driver name IOMCONS0.
4. At least one (optionally up to seven) pseudo line printers; driver name IOMPNLPO.
5. Optionally up to seven (none required) pseudo card punches; driver name IOMPNLPO.
6. At least one (optionally up to seven) pseudo card readers; driver name IOMRDR0.

MTS/3000

1. At least one SSLC; driver names CSSBSC0 and CSSBSC1 (both drivers are required). Driver CSSBSC0 should be named first in the configuration dialog (Step 3.50) and driver CSSBSC1 should be named as an additional driver in Steps 3.94 through 3.99.
2. One multipoint supervisor for each SSLC; driver name IOMPS0.
3. One or more multipoint terminals; driver name IOMPTRM0.

Configuration requirements for all data communications devices and pseudo devices are summarized in Appendices A and B. Refer to the tables in Appendix B when you encounter configuration prompts that pertain to any of the following:

- HSI — Table B-17.
- SSLC — Table B-14.
- DS/3000 Communications Driver — Table B-15.
- DS/3000 Pseudo Terminals — Table B-16.
- MRJE/3000 Pseudo Devices — Table B-18.
- MTS/3000 Devices — Table B-19.

SYSTEM MODIFICATION

The Configurator's output consists of questions and statements. The content of the question indicates the type of answer required. To those questions requiring a simple affirmative or negative answer, respond with YES (or Y) or NO (or N, or a carriage return). Other questions contain values followed by a question mark; they normally specify an existing parameter value or, the number of entries in use (min) followed by the existing maximum (max), and ask whether you want to change it. To retain the specified value, enter a carriage return. To change the value, enter the new value which, in the min/max case, is the new maximum value. In any case, you must always conclude an entry with a carriage return to transmit the entry to MPE.

Step No.	Dialog
1	<p>ANY CHANGES?</p> <p>To prepare for changes, enter YES. To omit changes and skip to Step 12, enter NO.</p>
2	<p>SYSTEM ID = HP 32002 V. <UU> . <FF>? (HP 32033V . <UU> . <FF> on Series 33 systems)</p> <p>V is the current MPE version, UU is the present update-level number, and FF is the fix-level number.</p> <p>To prepare for updating software for a new fix level, enter the new fix-level digits (FF). (These digits indicate the latest system fix provided by Hewlett-Packard.)</p> <p>Otherwise, enter a carriage return.</p>
3	<p>MEMORY SIZE = <XXX>?</p> <p>XXX denotes the present size of main memory. To indicate the size of main memory for the system for which MPE is being configured, enter one of the following values: 128, 160, 192, 224, 256, 384, 512, 768, or 1024. This indicates the memory size in a multiple of 1024 words.</p> <p>NOTE: The series type (II, III, or 33) determines which of these memory sizes are available.</p> <p>To retain the present memory size, enter a carriage return.</p>
3.1	<p>I/O CONFIGURATION CHANGES?</p> <p>To prepare for addition or deletion of input/output devices, enter YES.</p> <p>To maintain the same input/output device configuration and skip to Step 4, enter NO.</p>

Step No.	Dialog
3.4	<p>HIGHEST DRT=<XX>.</p> <p>XX is a value denoting the present highest DRT entry number that can be assigned to a device.</p> <p>To change XX, enter the new value desired. If the highest-numbered device in the configuration is a device that uses more than one DRT entry (such as a terminal controller with one or two data set controllers), be sure to enter the <i>highest</i> of the DRT numbers.</p> <p>To maintain the current XX, enter a carriage return.</p>
3.5	<p>LOGICAL DEVICE #?</p> <p>To specify a device to be added or removed, enter the logical device number of that device.</p> <p>To skip to Step 3.80 enter zero or a carriage return.</p>
3.6	<p>DRT # ?</p> <p>To add a device, enter its DRT entry number. In the case of all data communications devices, the DRT number you assign must be the logical device number of the associated SSLC board or HSI connector channel, preceded by a pound sign (#).</p> <p>NOTE: HP Data Communications products are not supported on Series 33 systems.</p> <p>Example: #20</p> <p>NOTE: On Series 33 systems, terminals are handled like single unit SID controllers. Thus, each has its own DRT. Each ADCC handles up to 8 terminals. If port 0 starts at DRT 8₁₀ (%10) then port 2 on that same ADCC would be DRT 10₁₀ (%12) and port 7 would be DRT 15₁₀ (%17). The system console must be configured as DRT 8, the lowest configurable DRT on Series 33 systems.</p>
3.7	<p>UNIT #?</p> <p>Enter the physical hardware unit number of the device, if the device shares its controller with other devices.</p> <p>NOTE: On Series 33 systems, all terminals must be configured as UNIT 0.</p> <p>If you are configuring a data communications subsystem, refer to the tables in Appendix B for unit numbers. Note that for MTS/3000 multipoint terminals, unit numbers identify the terminal by group ID and device ID. The numbering scheme is explained in the MTS/3000 Reference Manual. For</p>

Step No.	Dialog
	MRJE/3000, you must specify unit numbers for pseudo devices as shown in Table B-18.
	If the device does not share its controller with other devices, enter zero to continue.
3.8	SOFTWARE CHANNEL # ? If the device is to be on a multicontroller channel, enter channel number; if not, enter zero. Enter zero for all data communications devices and pseudo devices.
3.9	TYPE? Enter the device type. Use one of the decimal numbers listed below. NOTE: The following device types are not supported on Series 33 systems: 1, 8, 9, 18-20, 22, 23, 33-37, 41. <ul style="list-style-type: none"> 0 = Moving-Head Disc 1 = Fixed-Head Disc 8 = Card Reader 9 = Paper Tape Reader 16 = Terminals, DS/3000 pseudo terminals, multipoint terminals, multipoint supervisor, asynchronous terminal controller. 18 = Synchronous Single-Line Controller 19 = Hardwired Serial Interface 20 = Printing Reader/Punch 22 = MRJE Pseudo Device 23 = Programmable Controller 24 = Magnetic Tape 32 = Line Printer 33 = Card Punch 34 = Paper Tape Punch 35 = Plotter, CalComp Series 500 36 = Plotter, CalComp Series 600 37 = Plotter, CalComp Series 700 41 = DS/3000 Communications Driver
3.10	SUBTYPE? Enter the device subtype in the range 0 to 15. Device subtypes have special meanings and effects for device types 18 and 41. <ul style="list-style-type: none"> • If you configuring an SSLC (device type 18): <ul style="list-style-type: none"> Subtype 0 Specifies a switched line with a modem (telephone dial network). This subtype enables "data terminal ready," causing you to receive the special dial and answer prompts in Steps 3.20 through 3.22. Subtype 1 Specifies a nonswitched line with a modem (a leased line).

Step No.

Dialog

Subtype 3 Specifies a nonswitched (hardwired) line with synchronous communications.

Subtype 7 Specifies a nonswitched (hardwired) line with asynchronous communications.

- If you configuring a DS/3000 Communications Driver (device type 41):

Subtype 0 Specifies the default line usage is without data compression.

Subtype 1 Specifies the default line usage is with data compression.

Refer to Appendix A for a summary of subtypes for all devices and substems.

NOTE

If you are configuring a terminal (type 16), the dialogue continues to step 3.11. If you are configuring as HSI (type 19), the dialogue skips to step 3.13. If you are configuring an SSLC (type 18), the dialog skips to step 3.14. *For all other devices types, the dialog skips to step 3.40*

3.11 TERM TYPE?

This question is asked only if device type is 16. To specify a default terminal type to be used at log on, enter one of the following numbers:

NOTE: On Series 33 systems, only terminal types 10-13, 15, and 16 are supported.

- 0 HP 30124A (HP 2749B), ASR-33
- 1 ASR-37
- 2 ASR-35
- 3 Execuport 300
- 4 HP 30123 (HP 2600A), or Datapoint 3300
- 5 Memorex 1240
- 6 HP 30120A (HP 2762A/B), GE Terminet 300 or 1200
- 7 (Reserved)
- 8 (Reserved)
- 9 HP 30122A (HP 2615A) BeeHive Mini Bee
- 10 HP 2621A, HP 2640A/B, HP 2641A, HP 2644A, HP 2645A, HP 2647A, HP 2648A. Character mode or full control of block mode transmission by a user program.
- 11 HP 2640A/B, HP 2641A, HP 2644A, HP 2645A, HP 2647A, HP 2648A. Allows use of block mode without program control of block mode transmission. Recommended for speeds exceeding 30 cps when you expect to switch between character mode and block/line mode. May not be used for block/line mode. May not be used for block/page mode.
- 12 HP 2645K Katakana/Roman Data Terminal

Step No.	Dialog
3.11(Cont.)	<p>13 For use when connected to a message switching network or other computer. Configured with ECHO disabled and no delay after carriage control operations.</p> <p>14 Multipoint Terminal and Multipoint Supervisor.</p> <p>15 HP 2635A Printing Terminal. 8-bit protocol (for second character set).</p> <p>16 HP 2635A Printing Terminal. 7-bit protocol (standard character set).</p>

NOTE

For DS/3000 pseudo terminals, or if the terminal type is not known, enter a carriage return.

3.12 SPEED IN CHARACTERS PER SECOND?

This question is asked only if device type is 16. Specify zero or a carriage return for all DS/3000 pseudo terminals, the multipoint supervisor, and MTS/3000 multipoint terminals. For other terminals, to specify the terminal speed in characters per second, enter 10, 14, 15, 30, 60, 120, or 240. (Required for subtypes 4-7, not used for subtypes 0-3.)

Otherwise, enter 0 or a carriage return to cause speed sensing at log on (subtypes 0-3 only).

NOTE

The dialog skips to Step 3.40.

3.13 PORTMASK?

This question is asked only if device type is 19 (Hardwired Serial Interface (HSI)). The values allowed are shown below and must be entered in decimal. This forms a mask indicating which HSI channel (port) will be used. Only one of the four channels may be designated for each unique logical device number.

8 = HSI cable connector CHAN 0
4 = HSI cable connector CHAN 1
2 = HSI cable connector CHAN 2
1 = HSI cable connector CHAN 3

3.14 PROTOCOL?

Enter 1 for Binary Synchronous Communication.

Step No.

Dialog

3.15 LOCAL MODE?

1 = HSI
1 or 2 = SSLC (See Appendix B)
1 = Local is a primary contention station
2 = Local is a secondary contention station

To resolve the contention problem in point-to-point operations, each station is assigned a priority (primary or secondary). Because the secondary station can gain control of the line for a transmission only when the line is left free by the primary station, the SSLC is usually configured as a primary station.

Local mode determines the amount of time a local station will wait in response to a line bid; primary station timeout is two seconds and secondary is three seconds. If a response from the remote system is not received within the allowed time (two seconds for primary or three seconds for secondary), the line bid is re-transmitted until the number of retries permitted by the communications software is exhausted.

3.16 TRANSMISSION CODE?

Enter the appropriate number for the transmission code in use. The code numbers are:

1 = Automatic code sensing of ASCII and EBCDIC if initially receiving ASCII if initially sending; or for Hardwired Serial Interface.
2 = ASCII
3 = EBCDIC

Select the most frequently used method of transmission because your response establishes the configuration default. Users not transmitting by the default method can override this specification.

3.17 RECEIVE TIMEOUT?

A value from 0 to 32,000. Default is 20 seconds. Entering 0 disables the timeout feature. Enter the positive number of seconds the communications software will wait to receive text before terminating the read mode.

A batch job terminates if a timeout occurs. In a session, Receive Timeout is disabled.

NOTE

For all timeout responses (Steps 3.17, 3.18, and 3.19), the subsystem displays an error when the communications software (CS) disconnects because of a timeout.

Step No.

Dialog

3.18 LOCAL TIMEOUT?

A value from 0 to 32,000. Default is 60 seconds. Entering 0 disables the timeout feature. Enter the positive number of seconds a connected local station will wait to transmit or receive before disconnecting.

The local timeout feature notes the time between requests to the HSI or SSLC driver.

The local timeout feature is disabled in a session.

3.19 CONNECT TIMEOUT?

A value from 0 to 32,000. Default is 900 seconds. Entering 0 disables the timeout feature. Enter the positive number of seconds the local station will wait after one attempt to make a connection to a remote station.

A connect timeout occurs if the “data terminal ready” signal fails to indicate line connection within the specified time.

NOTE

Steps 3.20 through 3.22 apply only to CS devices with switched lines connected through a modem (dial telephones, subtype 0). For CS devices with nonswitched lines connected through a modem (private lines, subtype 1), the dialog skips to Step 3.23. If the CS device is hardwired (subtypes 3 and 7), the dialog skips to Step 3.25.

3.20 DIAL FACILITY?

Enter YES when calls can be dialed from the local station. Enter NO when they cannot.

3.21 ANSWER FACILITY?

Enter YES if the local modem can answer calls, either manually or automatically. Enter NO if it cannot. A NO response causes the next step to be skipped.

3.22 AUTOMATIC ANSWER?

Enter YES if the local modem can automatically answer calls. Enter NO if manual answering is required.

Step No.	Dialog
3.23	<p>DUAL SPEED?</p> <p>Enter YES if the local modem is dual speed (European models). Enter NO if it is single speed. A NO response causes the next step to be skipped.</p>
3.24	<p>HALF SPEED? (This prompt relevant to European models only.)</p> <p>Enter YES if the local modem is to operate at half speed. Enter NO if it is to operate at full speed.</p> <p>The dialog skips to Step 3.26.</p>
3.25	<p>SPEED CHANGEABLE?</p> <p>Enter YES if the speed of the line is changeable. Enter NO if the line speed is fixed. You must respond YES if the console operator will include the <i>speed</i> parameter in the =MPLINE and =DSLIN commands.</p>
3.26	<p>TRANSMISSION SPEED?</p> <p>Enter the transmission speed of the line in characters per second. For the Hardwired Serial Interface, enter 250,000 for cable lengths less than 1000 feet and enter 125,000 for cable lengths greater than 1000 feet. For the Synchronous Single-Line Controller, enter the speed in characters per second (250, 300, 600, or 1200).</p> <p>The transmission speed you specify is ignored for modems that provide internal clocking signals. This allows modems of different speeds to be used without reconfiguring the Operating System.</p> <p>The speed you specify becomes the default for DS/3000 and MTS/3000. The Console Operator can override the default by including the <i>speed</i> parameter in the =DSLIN and =MPLIN commands.</p>
3.27	<p>TRANSMISSION MODE?</p> <p>Enter the appropriate number for the transmission mode in use.</p> <p>0 = Full duplex (and for the Hardwired Serial Interface) 1 = Half duplex</p> <p>SSLC</p> <p>Configure the SSLC to operate in Full Duplex (0) if your facility uses one of the following:</p> <ul style="list-style-type: none"> • A leased line with four wire point-to-point installation. • A dial network with two lines (four wire equivalent). • A dial network with Wide Band Service.

Step No.

Dialog

Configure the SSLC to operate in Half Duplex (1) if your facility uses a dial network with a single-line (two wire) installation.

Your response must agree with the remote system's configuration and with the characteristics of the communication line.

HSI

Always configure an HSI as Full Duplex (0).

3.28

PREFERRED BUFFER SIZE?

Enter the desired buffer in words, up to a maximum of 4095. Large buffer sizes increase transmission efficiency, but use up memory space. Match buffer sizes whenever possible, because the effective buffer size that can be used is the smaller of the two buffer sizes between sender and receiver.

For MTS/3000 subsystems, your response must correspond to the strapped buffer size on the Communication Printed Circuit Assemblies in the multipoint terminals.

3.29

DRIVER CHANGEABLE?

No for HSI.

No for SSLC for DS/3000 and 2780/3780 Emulator.

Yes for SSLC for MRJE/3000 and MTS/3000.

3.30

DRIVER OPTIONS?

Enter 0.

NOTE

The dialog skips to Step 3.50. (Dialog Steps 3.31 to 3.39 are reserved for future use.)

3.40

RECORD WIDTH?

Enter the record width (in decimal Words) for the device. Default widths are referenced in Appendix A. Disc device defaults should be used. However, for other devices, any record width up to the maximum may be specified for your configuration.

3.41

OUTPUT DEVICE?

If the device is ever used as a job or session input device, enter the class name or logical device number to be used for the corresponding job/session listing device.

Step No.

Dialog

3.54 LOCAL ID SEQUENCE?

Only the DS/3000 Subsystem recognizes local ID sequences.

The default local ID sequence can be specified in terms of code or number system. Enter a carriage return for a null local ID sequence. Enter one of the letters below, followed by the ID sequence in quotes, if code, or parentheses, if number system:

A	=	ASCII	Example: A "JOE"
E	=	EBCDIC	Example: E "STRING"
O	=	Octal	Example: O (7, 35, 5)
H	=	Hexadecimal	Example: H (A1, 1F, BB)

NOTE

Do not enter more than 16 characters for the local or remote ID sequence.

3.55 REMOTE ID SEQUENCE?

Only the DS/3000 Subsystem recognizes remote ID sequences.

Enter the default remote ID sequence in the same format as the local ID sequence (above). This can be repeated until a carriage return is entered.

NOTE

Dialog Steps 3.56 to 3.69 are reserved for future use.

3.70 DEVICE CLASSES?

Enter a list containing a device class name (up to eight alphanumeric characters, beginning with a letter). Class names are separated from each other by commas. These names are left to the discretion of the System Supervisor. They will be used in certain file commands or intrinsics when any member of a group of devices (such as any disc drive) can be referenced. *No name need be entered.*

A device can belong to more than one class, such as DISC and FHDISC. Only the classes DISC and SPOOL (if spooling is desired) are specifically required by MPE. DISC is the default device class for building files. SPOOL is the device class for designating "spooling discs." Spoolfiles will only be allocated on discs which are included in the special device class SPOOL. User files also may reside on spooling discs.

If Step 3.71 is not necessary, control returns to Step 3.5.

Step No.	Dialog
----------	--------

3.71	IS classname A SERIAL DISC CLASS?
------	-----------------------------------

This question is asked (and it is asked for each class being implicitly created by this ldev change) if the device being configured is a moving-head disc, and classname is not the name of an existing device class.

Enter YES or NO.

Note that the response to this question should be NO for all classes of system and private volume discs.

Control returns to Step 3.5.

NOTE

Steps 3.72 through 3.79 are reserved for future use.

■ 3.80	MAX # OF OPENED SPOOLFILES = < XXX > .?
--------	---

To change the maximum number of input and output spoolfiles which can be FOPENed at one time, enter the new limit. To retain the current value, enter a carriage return. This can be used to control the generation of output spoolfiles.

NOTE

Each concurrent batch job to be executed requires at least two spoolfiles — one for standard input and one for standard output. Thus, if you specify a maximum of 20 spoolfiles in response to the above prompt, the system is restricted to running ten concurrent jobs.

3.81	LIST I/O DEVICES?
------	-------------------

To print a listing of the new input/output device configuration, enter YES. This list appears in the format described in Step 3.2.

To suppress the list, enter NO.

NOTE

The prompt in Step 3.82 below, appears only if you have configured a CS device into the system.

3.82	LIST CS DEVICES?
------	------------------

Enter YES to list the characteristics of the new CS device configuration. Enter NO to suppress the listing.

Step No.	Dialog
4	<p>SYSTEM TABLE CHANGES?</p> <p>To prepare for changing the CST, DST, PCB, IOQ, or MTAB, or other parameters relating to memory usage, enter YES.</p> <p>To bypass these changes, and proceed to Step 5, enter NO.</p>
4.1	<p>CST = <XXX>.? I</p> <p>To change the size of the shareable portion of the CST from XXX entries to another value, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
4.2	<p>EXTENDED CST = <XXXX>.? I</p> <p>To change the size of the program portion of the CST from XXXX entries to another value, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
4.3	<p>DST = <XXXX>.? I</p> <p>To change the size of the DST from XXXX entries to another value, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
4.4	<p>PCB = <XXX>.? I</p> <p>To change the size of the PCB table from XXX entries to another value, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
4.5	<p>I/O QUEUE = <XXX>.? I</p> <p>To change the number of the input/output queue entries permitted from XXX entries to another value, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
4.6	<p>TERMINAL BUFFERS = <XXX>.? I</p> <p>To change the number of terminal buffers in the system from XXX, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>

Step No.	Dialog
4.7	<p>SYSTEM BUFFERS = <XXX>?</p> <p>To change the number of system buffers in the system, enter the new value. To retain the current value, enter a carriage return.</p>
4.8	<p>MEMORY MANAGEMENT TABLE = <XXXX>?</p> <p>To change the size of the table from XXXX to another value, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
4.9	<p>ICS = <XXXX>?</p> <p>To change the number of words in the interrupt control stack (ICS), enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
4.10	<p>UCOP REQUEST QUEUE = <XXX>.??</p> <p>To change the number of entries allowed in the user controller process request queue to another value, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
4.11	<p>TIMER REQUEST LIST = <XXX>.??</p> <p>To change the maximum number of concurrent time-out requests for the system clock allowed, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
4.12	<p>BREAKPOINT TABLE = <XXX>.??</p> <p>To change the size of the breakpoint table from XXX entries, enter new value <256. To retain the current value, enter a carriage return.</p>
5	<p>MISC CONFIGURATION CHANGES?</p> <p>To prepare for the following miscellaneous configuration changes, enter YES:</p> <ul style="list-style-type: none"> • Listing and (optionally) deleting global resource identification numbers (RIN's) assigned to users. • Number of RIN's available in the RIN pool. • Maximum number of global RIN's available.

Step No.

Dialog

- Number of seconds allowed for logging-on.
- Maximum number of jobs allowed on the system.
- Maximum number of concurrent sessions allowed in execution.
- Default central-processor time-limit for jobs.
- Message catalog changes.

To bypass these changes and proceed to Step 6, enter NO.

5.1 LIST GLOBAL RINS?

To list the currently-assigned global resource identification numbers (RIN's), enter YES.

To suppress this listing, enter NO.

The listing consists of the RIN number and the name of the user and account to which it is assigned (for each RIN).

5.2 DELETE GLOBAL RIN? (RELOAD option only.)

To prepare for deleting any of the currently-assigned global RIN's, enter YES.

To bypass deletion and skip to Step 5.3, enter NO.

5.2.1 ENTER RIN NUMBER?

To delete a currently-assigned global RIN, enter the RIN number.

This step is repeated until a carriage return is entered.

NOTE

Since global RIN's are permanently assigned to users and the RIN numbers will be hard-coded into their programs, RIN's should be deleted with caution.

For this same reason the most up-to-date RIN table (which resides on disc) is used when the system is cold-loaded, except in the case of a RELOAD. This implies that any changes to the RIN table occurring during a :SYSDUMP operation, including changes to the size of the table, only take effect when the tape produced by :SYSDUMP is cold-loaded using the RELOAD option.

Step No.	Dialog
5.2.2	<p>LIST GLOBAL RINS?</p> <p>To list the updated global RIN's (as in Step 5.1), enter YES.</p> <p>To suppress the listing, enter NO.</p>
5.3	<p># OF RINS MIN = <YYY>, MAX = (XXXX).?</p> <p>To change the number of RIN's available in the RIN pool, enter a new value for XXXX. This value must be at least as great as YYY. (YYY is the maximum of 5 and the highest currently-assigned global RIN number.)</p> <p>To maintain the current maximum, enter a carriage return.</p>
5.4	<p># OF GLOBAL RINS USED = <YYY>,MAX = <XXXX>.? </p> <p>To change the maximum number of global RIN's available, enter a new value for XXXX. Because of the current assignment of global RIN numbers, this must be at least as great as YYY.</p> <p>To maintain the current value, enter a carriage return.</p>
5.5	<p># OF SECONDS TO LOG ON = <XXX>.? </p> <p>To change the number of seconds allowed for logging-on, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
5.6	<p>MAX # OF CONCURRENT RUNNING SESSIONS = <XXXX>.? </p> <p>To change the maximum number of sessions allowed in execution at one time, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
5.7	<p>MAXIMUM # OF CONCURRENT RUNNING JOBS = <XXX>.? </p> <p>To change the maximum number of jobs allowed in execution at one time, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
5.8	<p>DEFAULT JOB CPU TIME LIMIT = <XXXXX>.? </p> <p>To change the value, enter the new value in seconds. A zero implies that jobs are not limited; sessions are limited only if the user supplies a limit on the :HELLO command.</p> <p>To retain the current value, enter a carriage return.</p>

Step No.	Dialog
5.9	<p>LIST MESSAGE CATALOG?</p> <p>To list the current message catalog, enter YES.</p> <p>To suppress the listing, enter NO.</p>
5.10	<p>MESSAGE CATALOG CHANGES?</p> <p>To create a new message catalog from supplied file, enter YES.</p> <p>To skip to Step 6, enter a carriage return.</p>
5.11	<p>CATALOG INPUT FILE NAME?</p> <p>Name of disc file or formal designator to define the input file from which new catalog is to be built.</p>
5.12	<p>LIST MESSAGE CATALOG?</p> <p>To list new catalog, enter YES.</p> <p>To suppress the listing, enter NO.</p>
5.13	<p>(Series 33 only)</p> <p>SOFTDUMP COMMAND CHANGES?</p> <p>To make changes, enter YES.</p> <p>For no changes, enter NO. Skips to Step 6.</p>
5.14	<p>(Series 33 only)</p> <p>SOFTDUMP COMMAND FILE NAME?</p> <p>Enter file name.</p> <p>Dialog will respond with:</p> <p>NEW COMMAND FILE CREATED</p>
6	<p>LOGGING CHANGES?</p> <p>To prepare for changes to the logging characteristics of the system, enter YES.</p> <p>To bypass such changes and proceed to Step 7, enter NO.</p>
6.1	<p>LIST LOGGING STATUS?</p> <p>To print a list of the events that can be logged and whether or not they are currently being logged, enter YES.</p> <p>To suppress the listing, enter NO.</p>

Step No.**Dialog****6.2 STATUS CHANGES?**

To prepare for changes to the logging status, enter YES. If no changes are desired, enter NO to skip to Step 6.3.

6.2.1 ENTER TYPE, ON/OFF?

You should enter the type number of the event (defined below), a comma, and ON to signify that it is to be logged or OFF to signify that it is not.

The following Events may be logged:

Type No.	Event
1	Logging enabled
2	Job initiation
3	Job termination
4	Process termination
5	File close
6	System shutdown
7	Power failure
8	Spooling log record
9	Line disconnection
10	Line close
11	I/O error
12	Physical Mount/dismount log record
13	Logical mount/dismount log record
14	Tape labels log record
15	Console log record

NOTE

Event 1 must be ON for any logging to take place.
If event 2 is on, the default input priority for jobs and sessions is 8; if event 8 is on, this default output priority is 8. Otherwise, the normal default is 13 for both input and output priorities.

Step 6.2.1 is repeated until a carriage return is entered.

6.2.2 LIST LOGGING STATUS?

To list the updated logging status, respond with YES. To suppress the listing, enter NO.

6.3 LOG FILE RECORD SIZE (SECTORS) = <XX> .?

To change the value of the log file physical record size, enter the number of sectors desired. This number determines the size of the buffer for entries in the log file. (A sector is equal to 128 words.)

To retain the current value, respond with a carriage return.

Step No.

Dialog

6.4 LOG FILE SIZE (RECORDS) = <XXXXX>.?

To change the maximum number of physical records permitted in the log file, enter a new value. The log file has 16 extents, so each extent will contain:

$$\left(\frac{(\text{log file size})}{16} \times (\text{log file record size}) \right) \text{ sectors of disc space.}$$

To retain the present value, enter a carriage return.

7 DISC ALLOCATION CHANGES?

To prepare for disc allocation changes, enter YES.

To bypass such changes and proceed to Step 8, enter NO.

7.1 VIRTUAL MEMORY = <XXXXX>.? (RELOAD option only.)

To change the size of the area on disc used for virtual memory from XXXXX sectors to another value, enter the new value.

To retain the current value, enter a carriage return.

7.2 DIRECTORY USED = <YYYY> ,MIN = <ZZZZ> ,MAX = <XXXX> .?

To change the maximum size of the directory from XXXX sectors, enter the new value; YYYY specifies the amount of directory currently used; ZZZZ specifies the minimum value to which XXXX can be set. (ZZZZ will often be greater than YYYY due to unused areas that are not at the end of the space allotted to the directory.) Maximum size cannot exceed 6000 sectors.

To retain the present maximum size, enter a carriage return.

7.3 LIST VOLUME TABLE?

To list the disc volumes and their currently-assigned logical device numbers, enter YES. The listing is printed in the following format:

VOLUME #	NAME	LOG DEV #
<i>volnumber</i>	<i>volname</i>	<i>ldn</i>
.	.	.
.	.	.
.	.	.

Step No.

Dialog

In this listing, *volname* is a name of up to eight alphanumeric characters, beginning with a letter, identifying the volume; *ldn* is the logical device number assigned to that volume.

To suppress this listing, enter NO.

7.4 DELETE VOLUME? (RELOAD option only.)

To prepare to delete a volume, enter YES.

To bypass deletion and skip to Step 7.5, enter NO.

7.4.1 ENTER VOLUME NAME? (RELOAD option only.)

To delete a volume, enter the volume name. (When the name is entered, the question is repeated.)

Otherwise, enter a carriage return.

7.5 ADD VOLUME?

To prepare to add a volume, enter YES.

To bypass addition and skip to Step 7.6, enter NO.

7.5.1 ENTER VOLUME NAME

To add a volume, enter the volume name. (When the name is entered, the question is repeated.)

Otherwise, enter a carriage return.

7.6 LIST VOLUME TABLE?

To list the disc volumes and their currently assigned logical device numbers (as in Step 7.3), enter YES. In this listing, volumes just added (in Step 7.5) will have logical device numbers of zero.

To suppress this listing, enter NO.

■ 7.7 MAX # OF SPOOLFILES KILOSECTORS = <XXXXXX> ?

To change the maximum number of sectors which can be allocated to spoolfiles (expressed in thousands of sectors), enter the new value.

To retain the current limit, enter a carriage return.

Step No.	Dialog
7.8	<p># OF SECTORS PER SPOOLFILE EXTENT = <XXXXXX>.?</p> <p>Enter the size, in sectors, for each spoolfile extent. This must be a value between 128 and 32767.</p>
8	<p>SCHEDULING CHANGES?</p> <p>To prepare for changes to the scheduling queue, enter YES.</p> <p>To bypass these changes and proceed to Step 9, enter NO.</p>
8.1	<p>TIME QUANTUM = <XXXXXX>.?</p> <p>To change the time quantum in milliseconds, enter the new value. To keep the old value, enter a carriage return.</p>
8.2	<p>TERMINAL PRIORITY = <XXX>.?</p> <p>To change the priority assigned to a time-shared process when it completes a terminal read operation, enter the new value. To keep the old value, enter a carriage return.</p>
8.3	<p>CS PRIORITY LIMIT = <XXX>.?</p> <p>To change to the lowest priority to which a process in the CS subclass can fall, enter the new value. To retain the old value, enter a carriage return.</p>
8.4	<p>DS PRIORITY LIMIT = <XXX>.0</p> <p>To change to the lowest priority to which a process in the DS subclass can fall, enter the new value. To retain the old value, enter a carriage return.</p>
9	<p>SEGMENT LIMIT CHANGES?</p> <p>To prepare for changing the limits on code and data segments, enter YES.</p> <p>To retain the current limits and skip to Step 10, enter NO.</p>
9.1	<p>MAX # OF CONCURRENT RUNNING PROGRAMS = <XXX>.?</p> <p>To change the maximum number of concurrent running programs from XXX, enter the new value. To retain the current value, enter a carriage return.</p>
9.2	<p>MAX CODE SEG SIZE = <XXXXXX>.?</p> <p>To change the maximum number of words allowed in any code segment from XXXXX, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>

Step No.	Dialog
9.3	<p>MAX # OF CODE SEGMENTS/PROCESS = <XX>.? </p> <p>To change the maximum number of code segments allowed any user process, enter the new value.</p> <p>To retain the current value, enter NO.</p>
9.4	<p>MAX STACK SIZE = <XXXXX>.? </p> <p>To change the maximum number of words allowed in any user stack from XXXXX, enter the new value. (A maximum value of 31232 is permitted.)</p> <p>To retain the current value, enter a carriage return.</p>
9.5	<p>MAX EXTRA DATA SEG SIZE = <XXXXX>.? </p> <p>To change the maximum number of words allowed in any extra data segment from XXXXX, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
9.6	<p>MAX # OF EXTRA DATA SEGMENTS/PROCESS = <XXX>.? </p> <p>To change the maximum number of extra data segments that a process can have, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
9.7	<p>STD STACK SIZE = <XXXX>.? </p> <p>To change the number of words initially assigned for a user stack (Z-Q area) by default (when the user specifies no value) at preparation time from XXXX, enter the new value.</p> <p>To retain the current value, enter a carriage return.</p>
10	<p>SYSTEM PROGRAM CHANGES? </p> <p>To prepare to replace a program belonging to the system, enter YES.</p> <p>To proceed directly to Step 11, enter NO.</p>

Step No.

Dialog

FILES STORED =

FILE	.GROUP	.ACCOUNT	LDN	ADDRESS	VOLUME
------	--------	----------	-----	---------	--------

FILES NOT STORED =

FILE	.GROUP	.ACCOUNT	FILESET	REASON
------	--------	----------	---------	--------

13

The operator is now requested to assign the serial storage device on which you have arranged for a scratch tape or disc to be mounted. After operator assignment, the system is copied to tape (multi-reel files) or serial disc. It then can be loaded and initialized as directed under the heading *System Start-Up and Modification*.

NOTE: If flexible discs are to be used, you must be certain that an adequate number of pre-serialized flexible discs are available (Series 33 only).

Check the list of files not dumped for user files you want to save. Frequently the files; LOADLIST, MEMLOG, SL, and LOGXXXX are open when SYSDUMP is running, so their names often appear on the list of files not dumped. By a special process, SYSDUMP records the system file, SL, on tape, so it is saved. (See Appendix F for the list of system files dumped.) The other three files mentioned above are recreated from scratch by the Initiator each time the system is started.

If any file belonging to the system is not copied, the message:

WARNING FOLLOWING SYSTEM FILES NOT DUMPED

is issued and the file name and the reason it was not copied is listed. If the file was to replace a system program, the program name follows in parentheses.

If a response other than a carriage return was entered in answer to the ENTER DUMP DATE? question in Step 12, the list and count of files will be provided as described in Step 12.1.

To denote termination of the Configurator/User Dialog, the following message is printed.

END OF SUBSYSTEM

EXAMPLE OF SYSTEM BACK-UP ONLY

The Configurator/user dialog proceeds with output from the Configurator (:SYSDUMP) and input from the System Supervisor user. In the following example, only the system will be saved on a serial storage device. Prior to entering the dialog, the user logs on to the system and inputs at least a file reference to a serial storage device. A typical example is:

:FILE SYSCOPY; DEV=TAPE
:SYSDUMP *SYSCOPY

(Assume that device class TAPE is a magnetic tape.) The dialogue between Configurator and user then commences as follows:

Step No.	Dialog
0	ANY CHANGES? <u>NO</u> Reply NO (or carriage return) to omit changing the system and to skip to Step 12.
12	ENTER DUMP DATE? Enter carriage return. This is the null case of the Configurator. The operator is now requested to assign the serial storage device on which you have arranged for a scratch tape or disc to be mounted. After operator assignment, the system (only) is copied to tape or serial disc. In this regard, note that the account, group, and user structure is <i>not</i> copied to the device. However, the system programs in PUB.SYS are copied.
NOTE: If flexible discs are to be used (Series 33), you must be certain that an adequate number of pre-serialized flexible discs are available.	
13	To denote termination of the Configurator program, the following message is printed: END OF SUBSYSTEM

EXAMPLES OF SYSTEM BACK-UP WITH FILES

The Configurator/user dialog proceeds with the Configurator (:SYSDUMP) output and user input desired. In the first example below, the system and all files will be saved. In the second example, the system and a portion of the files will be saved. Prior to entering the dialog, the user logs onto the system and inputs at least a file reference to a serial storage device.

A typical example is:

```
:FILE SAVALL; DEV=TAPE  
:FILE LISTIT; DEV=LP  
:SYSDUMP *SAVALL, *LISTIT
```

Assume that device class TAPE and LP are a magnetic tape and a high speed line printer respectively.

In this example to save the system and all files, the dialog is as follows:

Step No.	Dialog
0	<p>ANY CHANGES? NO</p> <p>Enter NO (or carriage return) to omit modification to the system and to skip to Step 12.</p>
12	<p>ENTER DUMP DATE? 0</p> <p>Enter a zero.</p>
12.01	<p>ENTER DUMP FILE SUBSETS?</p> <p>At this point, you can instruct the Configurator to dump only certain files by entering file subsets. These subsets are entered in the fileset form as discussed under the :STORE command fileset parameter in Section II.</p> <p>For a complete SYSDUMP, enter a carriage return or @.@@. This is the case where the Configurator copies the system, the account, group, user, and file structure as well as all files on the system. This type of :SYSDUMP is done periodically to ensure integrity of the system and all files. This operation should be done at a convenient time, when there are no other users on the system. If there are other users on the system and they are accessing some files, those files being accessed will not be copied to the storage medium. This defeats the purpose of a full system and file backup. Because we are saving files along with the system, the Configurator proceeds to Step 12.1.</p>
12.1	<p>LIST FILES DUMPED?</p> <p>To obtain a listing showing the name of each file copied, enter YES. To suppress the list, enter NO. (A list showing the number (count) of files copied, the number of files not copied, the names of the files not copied, and the reasons why they were not copied is always provided.)</p> <p>The operator is now requested to assign the store device on which the :SYSDUMP will be placed.</p>
13	<p>To denote termination of the Configuration program, the following message is displayed:</p> <p>END OF SUBSYSTEM</p>

In the next example, the Configurator is used to copy the system, all accounting structures, and some files. This particular use of the Configurator needs further explanation before proceeding with the example.

When the system is operational, any file which is modified in some way will have a modification data placed in the file label at the time of modification (during the file close process). Some examples are:

- Writing on an existing file.
- Creating a (new) permanent file.
- Using the :RENAME command.

The process of reading a file or purging a file does not constitute a modification.

It can be quite time consuming to back up the system, all accounting structures, and all files every day. Thus an option is provided so that you periodically (for example, once a week) save everything, and then save various files that have been modified since the full system and file back up.

In the next example, assume that on Friday, November 18, 1977, you did a full system back up. On Monday, November 21, the users on the system created many new files. When there are no other users on the system, you, as the System Supervisor, log onto the system and enter a file reference to a store medium, a magnetic tape for example:

```
:FILE SAVESOME;DEV=TAPE
:FILE LISTSOME;DEV=LP
:SYSDUMP *SAVESOME,*LISTSOME
```

The dialog is as follows:

Step No.	Dialog
0	ANY CHANGES? NO
	Enter NO (or carriage return) to omit modifications to the system and to skip to Step 12.
12	ENTER DUMP DATE? 11/18/77
	Enter the date on which the full system and file back up was made. The Configurator program (SYSDUMP) will save the system and all accounting structures. It will then compare each and every file label modification date to the one which was entered in Step 12. Only those files whose modification date is the same or later than the date which you have input will be considered for saving. In this way, it can be seen that if the system had to be completely reloaded for any reason, it could be accomplished in two steps. First, you RELOAD the most recent tape (or serial disc), SAVESOME. When asked if there are more files, you mount the full system back up tape (or serial disc). This assures that the most recent versions of files are restored since RELOAD acts like RESTORE with the KEEP option.

Step No.	Dialog
12.01	<p>ENTER DUMP FILE SUBSETS?</p> <p>At this point, you can instruct the Configurator to dump only certain files by entering file subsets. These subsets are entered in the fileset form as discussed under the :STORE command fileset parameter in Section II.</p> <p>To dump all files modified since 11/18/77, enter a carriage return or @.@@.</p>
12.1	<p>LIST FILES DUMPED?</p> <p>To obtain a listing of all the files which have been dumped, enter YES. To suppress the listing, enter NO. A list showing the number (count) of files copied, the number of files not copied, the names of the files not copied, and the reasons why they were not copied is always provided.</p>
13	<p>To denote termination of the Configuration program, the following message is displayed.</p> <p>END OF SUBSYSTEM</p>

KEEPING THE ACCOUNTING STRUCTURE OFFLINE

In the previous discussion of the Configurator dialog under Step 12, it was stated that your account, group, user, and file structure information is kept on the serial storage medium (except the option to save only the operating system). Experience has shown that it is a good idea to keep all of the created structures on some offline medium such as a magnetic tape or serial disc file or a job card deck. This requires extra effort on the part of the System Supervisor in order to keep the offline media current.

SYSTEM START UP AND MODIFICATION

Any person with access to the MPE system console can turn the system power on and off, start up MPE, alter the current input/output device configuration, and shut down the system. This person need not have System Manager or System Supervisor capability; in fact, because he does not need to log on to the system, he need not even have standard user capability. See the *MPE Console Operator's Guide* for power on/off procedures.

Start up of MPE, recovery of spoolfiles or the reconfiguration of the input/output devices and the system, and handling of disc errors are done through a program called the MPE Initiator (or INITIAL). The Initiator is a stand-alone program that creates an operational MPE using files and table information available to it from tape or, in certain cases, from disc. The Initiator program is brought into memory for execution via cold load.

The cold load operation loads a subset of the Initiator program into memory from disc or serial storage device. Pressing the RUN/HALT switch (COLDLOAD Key on front panel or CONTROL and LOAD Keys on console on Series 33 systems) starts the Initiator program. The program pauses until you press RETURN on the system console, then it begins an interactive dialog. Some flexibility is provided within the Initiator to change the main memory size, input/output device configuration, and system tables.

There are five types of cold load: WARMSTART, COOLSTART, UPDATE, COLDSTART, and RELOAD. The subset of the Initiator is loaded into memory from the system disc during a WARMSTART or a COOLSTART. The subset is loaded from a backup serial storage medium during an UPDATE, a COLDSTART, or a RELOAD. The individual cold start options are described in the following paragraphs.

1. WARMSTART cold loads the system from the system disc. This is the standard operating procedure for restarting the system, because it is the only option which results in the recovery of incompletely processed, spooled jobs and spooled files. On any other option, any spooled files found in the system are deleted.

If a COOLSTART, COLDSTART, UPDATE, or RELOAD does not complete for any reason, the next cold load may not be a WARMSTART. A violation of this results in an error message and halt.

NOTE

The Initiator program should never be halted. If error recovery is not possible, the Initiator program should be allowed to complete, i.e., run until the request for DATE? appears.

2. COOLSTART cold loads the system from the system disc. This is the standard operating procedure when a system is routinely shut down at night and brought up the next day. All permanent user files (including programs such as FORTRAN/3000, COBOL/3000, SPL/3000, and EDIT/3000 that run as MPE subsystems) are saved; but the operational environment present prior to the last shutdown is not retained. Thus all temporary files, jobs and sessions in progress at shutdown (before COOLSTART) are lost.
3. UPDATE cold loads the system from magnetic tape or from serial disc. The system files come from the backup medium while the I/O device configuration, directory, accounting information, and global RIN's come from the system disc (user's files remain undisturbed). This is the standard operating procedure when starting the system with an updated MPE tape from Hewlett-Packard or an MPE tape prepared for a different HP 3000 Computer System, and should be used ONLY in those situations. If an UPDATE does not complete, it must be followed by a COLDSTART, UPDATE, or RELOAD. Any violation of this procedure results in an error message and a halt.
4. COLDSTART cold loads the system from magnetic tape or serial disc. The system files and I/O device configuration come from the backup medium while the user files, directory, accounting information, and assigned resource identification numbers (global RIN's) are retained current on the system disc. This allows modification of the system configuration while retaining user information. COLDSTART is commonly used to allow an installation to keep several cold load tapes or discs, each with a different configuration. If a COLDSTART does not complete for any reason, it must be followed by a COLDSTART, UPDATE, or RELOAD. Any violation of this causes an error message and a halt.

5. RELOAD cold loads the entire system, including all system files and I/O configuration information, from the backup medium. This option assumes that there is no information on the system disc. If any user files are dumped on the backup medium, the directory, accounting information, assigned global RIN's and user files are restored to the system disc from the backup copy. If the accounting structure was not dumped, a directory is created with the SYS account, PUB group, and MANAGER user. RELOAD is normally the method used to install the first MPE system supplied by Hewlett-Packard. It also is used when restoring the system (from a tape or serial disc generated by the user through a :SYSDUMP command) following a disc crash. If a RELOAD does not complete for any reason, the next cold load must also be a RELOAD.

When reloading from multiple volumes of tapes or serial discs that were created by the :SYSDUMP command, the first volume of the latest backup copy should be used for cold loading because it contains the up-to-date directory and accounting information. If not all of the files on the system are contained in this volume, an additional volume will be requested.

NOTE

Files belonging to non-system domain (private) volume sets are not restored during RELOAD.

No startup except an automatic power fail recovery permits resumption of user batch jobs or interactive sessions. Thus jobs and sessions must be re-initiated from the beginning by users after a system shutdown or a system failure.

All cold load options except WARMSTART allow you to alter the current I/O device configuration. This is done through an interactive dialog between the System Supervisor and the MPE Initiator.

Table 6-1 shows the origin of MPE system components for the various cold-load options.

When the system is started, the initialization of blank system disc packs, the writing of labels for them, and the renaming of volumes is accomplished by the MPE Initiator. Formatting of blank disc packs, however, is done by a diagnostic program rather than by the Initiator. See Appendix H.

CHANGING I/O DEVICE CONFIGURATION

All cold-load options except WARMSTART allow the operator to alter the input/output device configuration currently in effect. This is done through an interactive dialogue between the user and the MPE Initiator. This dialogue is described later in this section.

Be aware however, that any changes you make in the I/O configuration during the Initiator dialogue will not be backed up on tape. Therefore, at your earliest convenience, use SYSDUMP to obtain a back-up for the changes you make.

Table 6-1. Source of MPE System Components

MPE COMPONENT	WARMSTART	COOLSTART	UPDATE	COLDSTART	RELOAD*
MPE Programs, System Library	disc	disc	serial storage device	serial storage device	serial storage device
I/O & System Configurations	disc	disc	disc	serial storage device	serial storage device
Accounting Info, File Directory, Volume Table & User Files	disc	disc	disc	disc	serial storage device
Spoolfiles & Jobs	disc	—	—	—	—
*Certain information which may reside on the disc is checked for validity. See discussion on DISC ORGANIZATION.					

CHANGING MAIN MEMORY SIZE

MPE runs on HP 3000 Computer Systems with main-memory of the following sizes (all sizes are in K-bytes where K = 1024):

256K	448K	1024K
320K	512K	1536K
384K	768K	2048K

NOTE: The series type (II, III, or 33) determines which of these memory sizes are available.

The size specified by the user during configuration should be the actual size of main-memory delivered with the machine on which this MPE configuration is to run.

DISC ORGANIZATION AND ERROR RECOVERY

In order to appreciate how to recover disc errors, some background information is necessary so that you will have a better understanding of the error recovery facilities of the system.

The HP 3000 Computer System supports two distinctly different types of disc devices. The first is the *fixed-head* disc. These devices are normally used as the system disc because they are faster at accessing and transferring data than moving-head discs. They can do this because there is a magnetic "head" for each track on the disc. The head is fixed in position. The disc itself rotates past the heads and when data is transferred, the proper head is electrically switched on, so that data is transferred on the desired track. A *moving-head* disc has a magnetic head attached to an arm which is, in turn, attached to a servo mechanism. The arm must physically move to a specific cylinder before any data can be transferred. Moving-head discs are usually slower at accessing and transferring data than fixed-head discs. As an approximate comparison, fixed-head discs have an access time of approximately 8 to 11 milliseconds, while moving-head disc access time is in the 25-60 millisecond range.

To begin the dialog, follow these steps:

1. FOR STARTUP FROM SYSTEM DISC

For startup from system disc, begin with step 2.

FOR STARTUP FROM MAGNETIC TAPE

Mount the backup tape on the unit 0 magnetic tape drive and place the device on-line.

FOR STARTUP FROM SERIAL DISC

Mount the backup serial disc on any drive that does not share a controller with ldn 1 (serial disc may be HP 7902, HP 7906, HP 7920, or HP 7925). If only one controller is available, or if it is desired to place both SDISC and SYSDISC on the same controller, it will be necessary to switch unit numbers during initial, and input the ldn to which the coldload SDISC has been changed. The Initiator will dynamically allocate this ldev to the non-system domain during startup, making it available for private volume use (HP 7920 and HP 7925 only) once the system is up.

NOTE

Only the upper (removable) platter of a HP 7905 or 7906 disc drive may be used as a serial disc or private volume. The lower (fixed) platter must be either configured in the system domain or not configured.

2. SERIES II/III SYSTEMS:

FOR STARTUP FROM MAGNETIC TAPE

On the System Control Panel, set bits 5, 6, 13, and 14 of the SYSTEM SWITCH REGISTER to octal 3006.

FOR STARTUP FROM A SERIAL OR SYSTEM DISC

On the System Control Panel, set the SYSTEM SWITCH register to the DRT number of the disc drive on which the disc is mounted.

SERIES 33 SYSTEMS:

FOR STARTUP FROM MAGNETIC TAPE OR A SERIAL DISC

On the System Front Panel, set the COLD LOAD thumbwheel switch to the octal value of the DRT number (channel address and device address) of the device on which the tape or disc is mounted.

FOR STARTUP FROM SYSTEM DISC

On the System Control Panel, set the WARMSTART thumbwheel switch to the octal value of the DRT number (device address and channel address) of the system disc. The system disc is always configured as logical device number one (ldn 1).

3. SERIES II/III SYSTEMS:

While pressing (and holding) the ENABLE switch, press the LOAD switch. This action causes the cold load operation to begin. The Initiator program is read into main memory.

Wait for the RUN light to go out. The SYSTEM HALT light should not be lit.

SERIES 33 SYSTEMS:

FOR STARTUP FROM MAGNETIC TAPE OR A SERIAL DISC

On the System Front Panel, press the COLD LOAD key; or, on the System Console, press the LOAD key while pressing the CNTL key. (Be sure that the console keys are enabled.)

FOR STARTUP FROM SYSTEM DISC

On the System Front Panel, press the WARMSTART key; or, on the System Console, press the START key while pressing the CNTL key. (Be sure that the console keys are enabled.)

This action causes the cold load operation to begin. The Initiator program is read into main memory.

4. (Series II/III only — press the RUN/HALT switch.) The Initiator program is now in execution. Next, on all systems, press the carriage return on the system console. This is required so that the system hardware will speed sense the console device. The Initiator prints the following message on the console:

HP 32002V.UU.FF or
HP 32033V.UU.FF

In this message, V is the current MPE version, UU is the present update-level number, and FF is the fix-level number.

The Initiator next begins its dialog by printing the information shown in table 6-2 on the console. (In the dialog shown in table 6-2, output from the Initiator is shown verbatim in upper-case letters and input from the user is described in mixed upper and lower-case letters.)

If cold loading is done from magnetic tape or serial disc, the Initiator begins its dialog at Step 1. If cold loading is done from the system disc, the dialog begins with Step 0.

The dialog shown in table 6-2 is similar to that for :SYSDUMP, described previously, and is only explained in detail where the two operations differ.

Table 6-2. Initiator-User Dialog

STEP NO.	DIALOG																								
0	<p>WHICH OPTION <WARMSTART/COOLSTART>?</p> <p>Enter the desired option. Note that only the first 3 characters of the option are required. For example WAR or COO. If WARMSTART is selected, the system will recover certain input and all output spoolfiles; unstarted spooled jobs; and partially complete, RESTARTable jobs remaining in the system from the previous execution of MPE. The spoolfiles recovered are available for further processing. Spooled jobs (i.e., those with spooled job input files) which were executing at the time of interruption will be recovered in the waiting state, if you specified RESTART in the :JOB command.</p> <p>All waiting spooled jobs are also recovered. MPE will defer all recovered jobs and output spoolfiles by establishing job and output fences of 14. (A job or output spoolfile whose priority is at or below the appropriate fence is said to be deferred.)</p> <p>If the operator specifies the WARMSTART cold load option, spoolfile recovery is initiated. All output spoolfiles are placed in the READY state, even if they were OPENED or ACTIVE when the interruption occurred. The output fence is set to 14, thereby deferring all output spoolfiles.</p> <p>READY input spoolfiles and spooled, WAITING jobs are also recovered. In order to recover certain EXECUTING jobs, you may specify the RESTART parameter in the :JOB command. A job input spoolfile for a non-RESTARTable job which was executing when the interruption occurred will not be recovered; nor will any :DATA spoolfiles opened by such a job be recovered. All other input spoolfiles open at the time of interruption will be placed in the READY state, completely recovered. Input spoolfiles which were being created (i.e., were ACTIVE) when the interruption occurred can not be recovered and are automatically deleted during a WARMSTART. The job fence is set to 14, thereby deferring all non-HIPRI jobs.</p> <p>These actions are summarized below.</p> <table> <tr> <th colspan="2">Input Spoolfiles</th></tr> <tr> <th>Interrupted State</th><th>WARMSTART Action</th></tr> <tr> <td>ACTIVE</td><td>Deleted</td></tr> <tr> <td>READY</td><td>READY (no change)</td></tr> <tr> <td>OPENED, not RESTART</td><td>Deleted</td></tr> <tr> <td>OPENED, RESTART</td><td>READY (complete)</td></tr> </table> <table> <tr> <th colspan="2">Output Spoolfiles</th></tr> <tr> <th>Interrupted State</th><th>WARMSTART Action</th></tr> <tr> <td>OPENED</td><td>READY (incomplete)</td></tr> <tr> <td>READY</td><td>READY (no change)</td></tr> <tr> <td>ACTIVE (single, or last copy)</td><td>READY (remaining extents)</td></tr> <tr> <td>ACTIVE (m out of n fully copied)</td><td>READY (make n-m full copies)</td></tr> </table> <p>Note, however, that recovered HIPRI jobs will start immediately; and that HIPRI jobs/sessions can be submitted and processed.</p> <p>When the WARMSTART option is selected, the configuration changes portion of the initiator dialog is skipped (i.e., Steps 1 through 4 and Steps 5.1 through 10).</p> <p>If COOLSTART is selected, skip to Step 1.</p> <p>If WARMSTART is selected, skip to Step 5.</p>	Input Spoolfiles		Interrupted State	WARMSTART Action	ACTIVE	Deleted	READY	READY (no change)	OPENED, not RESTART	Deleted	OPENED, RESTART	READY (complete)	Output Spoolfiles		Interrupted State	WARMSTART Action	OPENED	READY (incomplete)	READY	READY (no change)	ACTIVE (single, or last copy)	READY (remaining extents)	ACTIVE (m out of n fully copied)	READY (make n-m full copies)
Input Spoolfiles																									
Interrupted State	WARMSTART Action																								
ACTIVE	Deleted																								
READY	READY (no change)																								
OPENED, not RESTART	Deleted																								
OPENED, RESTART	READY (complete)																								
Output Spoolfiles																									
Interrupted State	WARMSTART Action																								
OPENED	READY (incomplete)																								
READY	READY (no change)																								
ACTIVE (single, or last copy)	READY (remaining extents)																								
ACTIVE (m out of n fully copied)	READY (make n-m full copies)																								

Table 6-2. Initiator-User Dialog (Continued)

STEP NO.	DIALOG
1	<p>ANY CHANGES?</p> <p>To proceed with changes to the current configuration, enter YES.</p> <p style="text-align: center;">NOTE</p> <p>Any changes you make to the I/O configuration at this step will not be backed up. At your earliest opportunity use SYSDUMP to obtain a backup for your changes.</p> <p>To maintain the current configuration, enter NO. If this is a RELOAD without changes, the Initiator skips to Step 5.8. Otherwise, it skips to Step 5 for COOL-START, COLDSTART, and UPDATE options.</p>
2	<p>LOAD MAP?</p> <p>To request a map on the console showing the correspondences between MPE segments, programs, and code segment table (CST) entries, enter YES. The format of the map is shown in figure 6-5. Note: When a particular running system halts for any reason, it is mandatory to have a LOAD MAP for analysis, provided a system memory dump is taken for the analysis.</p> <p>To suppress this map, enter NO.</p>
3	<p>MEMORY SIZE=<XXX>?</p> <p>The value XXX is the current size of main-memory for the system (in multiples of 1024 words). To change this value, enter one of the following values (specifying memory size in multiples of 1024 words): 64, 96, 128, 160, 192, 224, 256, 384, 512, 768, 1024.</p>
3.1	<p>I/O CONFIGURATION CHANGES?</p> <p>To prepare for addition or deletion of input/output devices, enter YES.</p> <p>To maintain the same input/output device configuration, and proceed to Step 4 enter NO.</p>
3.2	<p>LIST I/O DEVICES?</p> <p>To print a list of input/output devices currently assigned to the system, enter YES.</p> <p>To suppress this listing, enter NO.</p> <p>If an input/output device listing is requested, it is displayed in tabular form. See step 3.2 of the :SYSDUMP dialog for the format of the listing.</p>
<p style="text-align: center;">NOTE</p> <p>The prompt in Step 3.3, below, appears only if a communications subsystem device (CS) was previously configured into the system.</p>	

Table 6-2. Initiator-User Dialog (Continued)

STEP NO.	DIALOG
3.3	<p>LIST CS DEVICES</p> <p>To print a list of the characteristics of all SSLCs currently assigned to the system, enter YES.</p> <p>To suppress this listing, enter NO.</p> <p>If a listing is requested, it is displayed in tabular form. See step 3.3 of the :SYSDUMP dialog for the format of the listing.</p>
3.4	<p>HIGHEST DRT = <XX>.? </p> <p>XX is a number denoting the present highest DRT entry number that can be assigned to a device. (Note: Do not consider the Multiplexer Channel board DRT when determining this value.)</p> <p>To change XX, enter the new value desired.</p> <p>To maintain the current XX, enter a carriage return.</p>
3.5	<p>LOGICAL DEVICE #?</p> <p>To specify a device to be added or removed, enter the logical device number of that device.</p> <p>To skip to Step 3.80, enter zero or a carriage return.</p>
3.6	<p>DRT #?</p> <p>To add a device, enter its DRT entry number.</p> <p>If a data communications subsystem was configured into the system, see Step 3.6 of the SYSDUMP dialog.</p> <p>NOTE: For Series 33 systems, see notes for Step 3.6, page 6-19 and Appendix K.</p> <p>To remove a device and return to Step 3.5, enter zero.</p>
3.7	<p>UNIT #?</p> <p>Enter the unit number of the device, if the device shares its controller with other devices.</p> <p>NOTE: On Series 33 systems, all terminals must be configured as UNIT 0.</p> <p>If a data communications subsystem was configured into the system, see Step 3.7 of the SYSDUMP dialog.</p> <p>Otherwise, enter zero to continue</p>
3.8	<p>SOFTWARE CHANNEL #?</p> <p>If the device is to be on a multicontroller channel, enter channel number; if not, enter zero.</p> <p>Enter zero for all data communications devices and pseudo devices.</p>

Table 6-2. Initiator-User Dialog (Continued)

STEP NO.	DIALOG
	<p>(i) **WARNING** IN ALTERNATE AREA DELETE OR RECOVER?</p> <p>A suspect track is located in the area reserved for alternate track assignment. Valid responses are DELETE, RECOVER or carriage return to ignore the error.</p> <p>(j) FLAGGED TRACK IN RESERVED AREA — MUST REINITIALIZE PACK</p> <p>A track flagged as defective is located in the area between the volume label (disc label) and the end of the disc free space table. The system halts at this time. You must either mount a new pack previously formatted or rerun the diagnostic on the present pack to reformat it. Following this, you should restart using the RELOAD option. See Appendix H for formatting procedures.</p> <p>(k) **WARNING** IN RESERVED AREA RECOVER?</p> <p>A suspect track is located in the area between the disc label and the end of the disc free-space table. Respond with YES to remove the entry from the defective tracks table, or NO to leave it in the defective tracks table. Note: RECOVER assumes that the error never occurred. This could be dangerous to system integrity.</p> <p>(l) **WARNING** IN SYSTEM AREA RECOVER?</p> <p>A suspect track is located in the area used for the Initiator program and its associated tables. Respond with YES to remove the entry, or NO to leave it in the defective tracks table.</p> <p>(m) **WARNING** IN DIRECTORY RECOVER?</p> <p>A suspect track is located in the area used by the system for the file directory, and this is not a RELOAD. Respond with YES to remove the entry or NO to leave it in the defective tracks table.</p> <p>(n) **WARNING** IN DIRECTORY DELETE, REASSIGN OR RECOVER? DELETE OR RECOVER?</p> <p>A suspect track is located in the area previously assigned to the directory and this load is a RELOAD using the COMPACT, RESTORE, or ACCOUNTS options. The first form of the question is used for moving head discs and the second for fixed head discs. In the case of moving-head discs, responses are DELETE, REASSIGN, or RECOVER. For fixed-head discs, only DELETE or RECOVER is allowed.</p> <p>(o) **WARNING** IN VIRTUAL MEMORY DELETE, REASSIGN OR RECOVER? DELETE OR RECOVER?</p>

Table 6-2. Initiator-User Dialog (Continued)

STEP NO.	DIALOG
	<p>A suspect track is located in the area used for the virtual memory. If this load is not a RELOAD, the second form of the question will be used and responses DELETE or RECOVER are valid. If it is a RELOAD using the COMPACT, RESTORE, or ACCOUNTS options, the first form of the question will be used for moving-head discs and the second form for fixed-head discs. Responses are the same as in step n above.</p> <p>(p) DELETE OR RECOVER?</p> <p>The suspect track is located in no special area of a moving-head disc. All responses DELETE, RECOVER, or carriage return to ignore the problem, are valid.</p> <p>(q) DELETE, REASSIGN OR RECOVER?</p> <p>The suspect track is located in no special area of a moving-head disc. All responses are valid, including a carriage return to ignore the problem.</p> <p>(R) NON-SYSTEM VOLUME ON DEVICE # ADD TO SYSTEM VOLUME SET?</p> <p>Answer YES if the disc volume is to be added to the system domain or NO if it is to be added to the private volumes (non-system) domain.</p>
5.9	<p>If any changes have been made to the defective tracks table in Step 5.8, the following question will be printed:</p> <p>LIST DEFECTIVE TRACKS TABLE?</p> <p>To prepare for listing the defective tracks table of any disc, respond with YES. Otherwise, respond with NO or a carriage return to skip to Step 5.10.</p>
5.9.1	<p>LOGICAL DEVICE #?</p> <p>Enter the logical device number of the disc for which the defective tracks table listing is desired, (as in Step 5.4.1). This question is repeated until a carriage return is entered signifying that no further listings are desired.</p>
5.10	<p>If any changes have been made to the volume table in Step 5.8, the following question is printed:</p> <p>LIST VOLUME TABLE?</p> <p>Respond with YES to obtain a listing of the volume table (as described in Step 5.1); otherwise, enter NO or a carriage return to bypass the listing.</p>
6	<p>If this load is not a RELOAD and the size of virtual memory on the disc differs from the configured size of virtual memory, the following message will be printed:</p> <p>**WARNING** VIRTUAL MEMORY SIZE ONLY CHANGED ON RELOAD</p> <p>This message will often occur when reconfiguring the system for a different main-memory size; since the default value for the size of the virtual memory differs for different main-memory sizes in the key records of the configuration data file known as CONFDATA. See :SYSDUMP discussion for more information.</p>

Table 6-2. Initiator-User Dialog (Continued)

STEP NO.	DIALOG
	<p>(k) IRRECOVERABLE PARITY ERRORS</p> <p>Initiator encountered parity errors in both the header and trailer labels of the tape, and was not able to continue with the RELOAD operation. The Initiator aborts as a result.</p>
10	<p>One of the following messages may be printed due to disc errors:</p> <p>(a) **WARNING** OLD WELCOME MESSAGE ON DEFECTIVE TRACKS</p> <p>If WARMSTART, COOLSTART, or UPDATE, an attempt is made to recover welcome message but if it or DST Descriptor table is located on defective tracks, welcome message is set to null. Operator should enter new welcome message after load is complete.</p> <p>(b) CANNOT RECOVER DISC SPACE OF SPOOLFILE #XXXX</p> <p>A disc error occurred during the attempt to recover lost disc space of the input/output spoolfile.</p>
11	<p>DATE (M/D/Y)?</p> <p>Enter a carriage return or the current date in the following format:</p> <p><i>mm/dm/yr</i></p> <p>where</p> <p><i>mm</i> = One or two digits representing the month. <i>dm</i> = One or two digits representing the day of the month. <i>yr</i> = The last two digits of the year.</p> <p>If a carriage return is entered, the next question is skipped and MPE prints:</p> <p>WED, NOV 1, 1972, 12:00 AM</p>
11.1	<p>TIME (H:M)?</p> <p>Enter the current time of day in the following format:</p> <p><i>hh:mm</i></p> <p>where</p> <p><i>hh</i> = One or two digits indicating the hour (on a 24-hour basis). <i>mm</i> = One or two digits indicating the minute.</p>
11.2	<p>MPE Prints the date and time and the message? (Y/N)</p> <p>If the date and time were entered in Steps 11 and 11.1, MPE echoes them for verification. If you respond with NO (or N), the Initiator returns to Step 11.</p> <p>If the date and time are correct, enter YES or carriage return to continue.</p>
<p>The Initiator program now terminates, transferring control to MPE. When the system prints *WELCOME*, it is ready for use.</p>	

LOAD MAP

A typical map requested in Step 2 of the Initiator/user Dialog appears as shown in figure 6-5. This map shows the correspondence between MPE code segments and programs, and code segment table (CST) entries. First, the CST number (in octal) is shown. Next, the System Segmented Library (SL) segment name or program name is presented. SL segment names are followed by a parenthesized value, program file names are not. The parenthesized number indicates the logical segment number of the segment within the system library, identified as SL.PUB.SYS.

COLD LOAD ERROR MESSAGES

One of the error messages shown in table 6-3 may appear while cold loading the system. Following the printing of the message, the machine halts.

01	ININ
02	FIRMWARESIM2 (1)
03	CIFILEM (5)
04	CILISTF (7)
05	CISUBS (13)
06	FILESYS7 (14)
07	FILESYS6A (15)
10	NRIO (20)
11	MESSAGE (21)
12	DATASEG (22)
13	PINT (27)
14	PCREATE (30)
15	CROUTINE (31)
16	EXCHANGEDB (41)
17	FILESYS6 (43)
20	FILESYS5 (46)
21	FILESYS4 (51)
22	FILESYS3 (55)
23	SPOOLING (61)
24	STKDUMP (62)
25	CXSTOREST (63)
26	FILESYS2 (64)
27	CIINIT (65)
30	MMDISK (66)
31	FILESYS1A (67)
32	SEGUTIL (70)
33	ABORTTRAP (71)
34	STORE (72)
35	CHFCKER (73)
36	UTILITY2 (74)
37	UTILITY1 (76)
40	CRIO (101)
41	ALLOCATE (104)

Figure 6-5. Load Map

Table 6-3. Cold Load Error Messages (Continued)

TAPE I/O CMD REJECTED
This error, reported by the magnetic tape controller, implies that there is a bad tape controller. If you have more than one drive on your system, check to ensure that only one drive is on-line and the proper unit has been selected (unit 0). Retry the operation; if it fails with the same error message, then contact your HP Customer Engineer.
TAPE PARITY ERROR
A parity error was detected while reading the magnetic tape. Try a back-up tape after cleaning the tape heads.
TAPE TRANSFER ERROR
This error, reported by the magnetic tape controller, implies either a defective tape or a defective tape controller. Try a back-up tape after cleaning the tape heads.
TAPE UNIT WENT NOT READY
This error, reported by the magnetic tape controller, implies either that the tape controller is defective or you switched the tape unit off-line during an operation.
TIMING ERROR
This error, reported by the magnetic tape controller, implies a defective tape controller. Contact your Hewlett-Packard Customer Engineer.
VOLUME TABLE DESTROYED; MUST RELOAD
The volume table maintained on the system disc has been overwritten; the system must be reloaded.

BACKING UP DISC FILES ON A SERIAL STORAGE MEDIUM

MPE provides two methods of backing-up files. These are:

1. The `:SYSDUMP` command, used to dump all files on the system or only those files most recently changed, and the current directory and accounting information.
2. The `:STORE` command, defined in Section II. This command is available to standard users in order to back up those files to which the user has read access. System Manager and System Supervisor users, however, have the ability to dump any or all files in the system by using the `:STORE` command.

Files produced by `:SYSDUMP` and `:STORE` are compatible. Those written by `:SYSDUMP` are used by the MPE Initiator when reloading the system (`RELOAD` option). Files produced by either method are suitable as input to the `:RESTORE` command (described in Section II) which allows a System Manager or System Supervisor to restore to disc from a back-up medium any file in the system.

In general, `:SYSDUMP` should be used for daily back-up of the system (with the options previously discussed), since it provides a record of the latest accounting information. `:STORE/`
`:RESTORE` is used when it is desirable to back-up only those files which belong to a particular set of groups or accounts. However, `:STORE/`
`:RESTORE` can be used by the System Manager or System Supervisor to save or load any or all files on the system provided the appropriate accounts, group, and user structures already exist.

MAGNETIC TAPE FORMAT

The general magnetic tape format of a :STORE command is listed in figure 6-6. Both :STORE and :RESTORE support multi-file and multi-reel files.

The *tape directory* records are 12-word records, 85 records per block. The blocksize is 1020 words. The last record of the tape directory may be shorter than 1020 words. There is one entry for each file on the tape. The entries are ordered the same as the files on the tape. See Appendix F for further information.

Each file record on tape is 1024 words long. The last record may be shorter, but will be a multiple of 128 words. The beginning of each file contains the *file label* known to the file system.

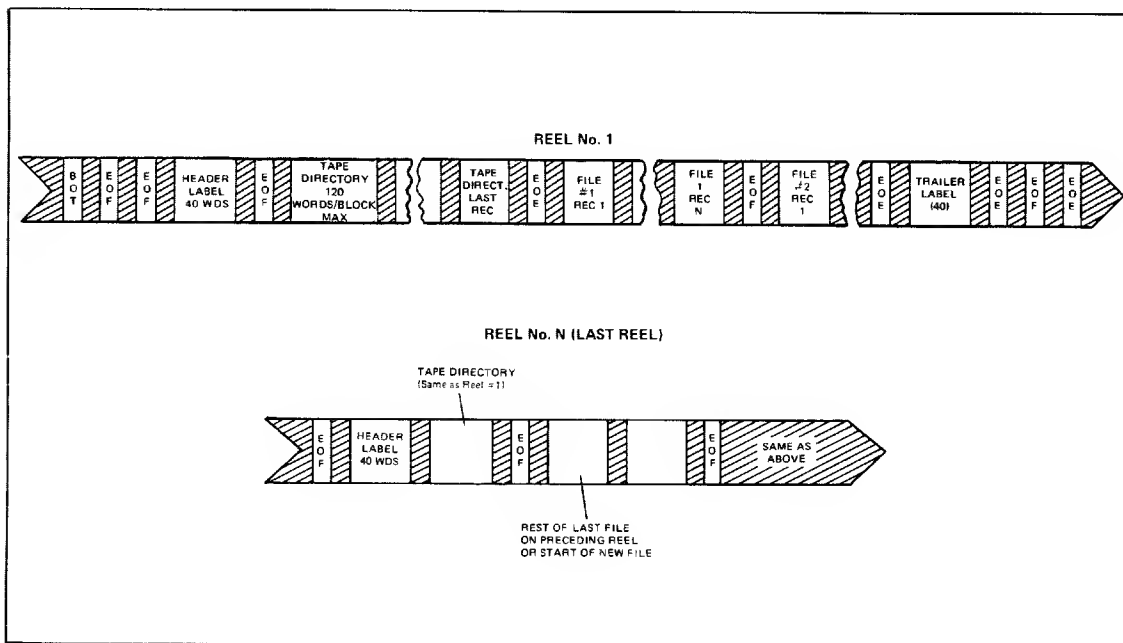


Figure 6-6. :STORE Tape Format

DUMPING FILES OFF LINE

Any user with standard MPE capability can obtain a back-up copy of a particular user disc file or fileset, by copying fileset off-line to a serial storage device by issuing the :STORE command. The files are copied in a special format along with all descriptive information (such as *accountname*, *groupname*, and *lockword*), permitting them to be read back into the system later (by the :RESTORE COMMAND).

The :STORE and :RESTORE commands are used primarily as a back-up for files. They can be used to interchange files between installations if the accounts, groups, and creators of the files to be restored are defined in the destination system. Furthermore, if no destination device is specified in the :RESTORE command, MPE does not guarantee which devices will actually receive the files – if a device of the same type as the original device with sufficient storage space cannot be found, the file is restored to any device that is a member of the device class DISC.

LOG RECORDS. — Log records are written to the log file by MPE. This is done by calls to a special log intrinsic from the intrinsic or process that requires the recording of a particular event. The log records can be subsequently accessed, manipulated, and displayed through user-supplied analysis routines.

Sixteen types of log records can be entered; see table 6-6.

Table 6-6. Log Record Types

TYPE NO.	TYPE
0	Log Failure Record
1	Head Record
2	Job Initiation Record
3	Job Termination Record
4	Process Termination Record
5	File Close Record
6	Shut-Down Record
7	Power Failure Record
8	Spooling Log Record
9	Line Disconnection
10	Line Close
11	I/O Error
12	Physical Mount/Dismount Record
13	Logical Mount/Dismount Record
14	Tape Labels Record
15	Console Log

When logging is enabled, log failure and head records are always output; the remaining types of records may or may not be emitted, depending on the options selected during system configuration.

Log records, although different in format, length, and content, always have the same heading; see figure 6-13. In this format, the following definitions apply:

RECORD TYPE defines the record as one of the 16 types described above.

RECORD LENGTH defines the number of words that the record contains.

TIME STAMP is the date and time, in the format shown in the lower portion of figure 6-13.

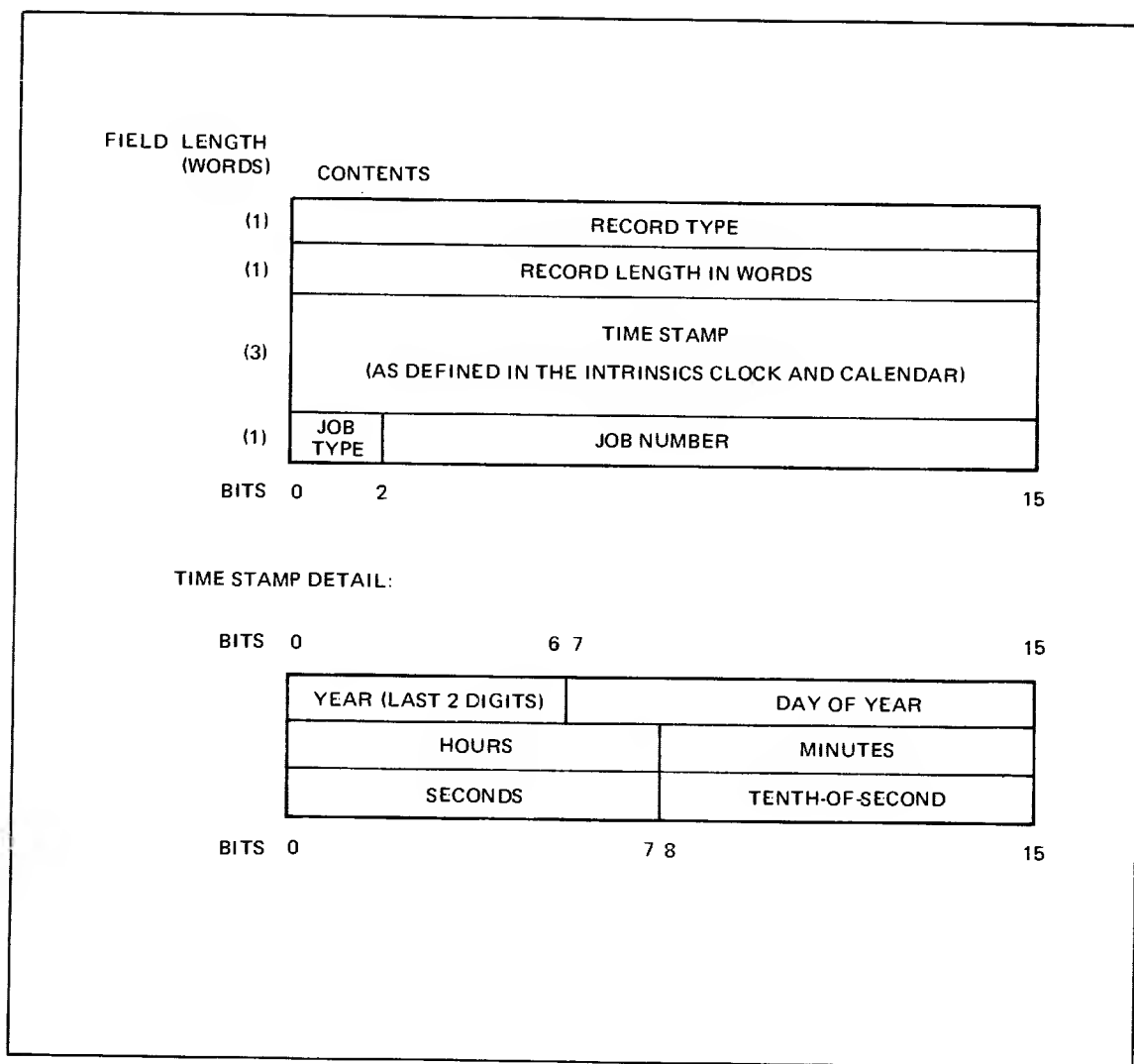


Figure 6-13. Log Record Heading Format

JOB TYPE is the type of main process being run, where bits 0 and 1 have the following meaning:

(00)	System
(01)	Session
(10)	Job

JOB NUMBER is a number defining the job/session under which the log record has been output. If this last word is 0, this means that the record is related to the system and was not output for a user.

Beyond the heading, the information in each individual record depends on the type of record and the particular event logged.

The general formats of all 16 types of records are described in figures 6-14 through 6-28a.

FIELD LENGTH
WORDS

VALUES ALWAYS
TAKEN

(1)	RECORD TYPE										= 14
(1)	RECORD LENGTH										= 29
(3)	TIME STAMP										
(1)	LOGICAL DEVICE NUMBER										
(1)						FILE NUMBER					
(1)	FILE SEQUENCE NO.					SEQ. TYPE	TYPE	T M	A	L	W
(1)	PIN NO.					VOLUME SEQUENCE NO.					
(1)	EXPIRATION DATE										
(9)	FILE NAME										
(4)	LOCKWORD										
(3)	VOLUME SET ID										
(3)	VOLUME ID										

TYPE = 2 ANSI-STANDARD LABEL
TYPE = 3 IBM-STANDARD LABEL

SEQ. TYPE = 0 SEARCH FOR MATCH ON FILE NAME
 = 1 NEXT OR DEFAULT
 = 2 ADD FILE TO END OF VOLUME SET
 = 3 SPECIFIED FILE SEQUENCE NUMBER

W = WAITING FOR MOUNT
L = JOB ENTRY LINKED TO LOGICAL DEVICE
A = USER HEADER LABEL
TM = USER TRAILER LABEL

Figure 6-28. Tape Labels Log Record (Type 14)

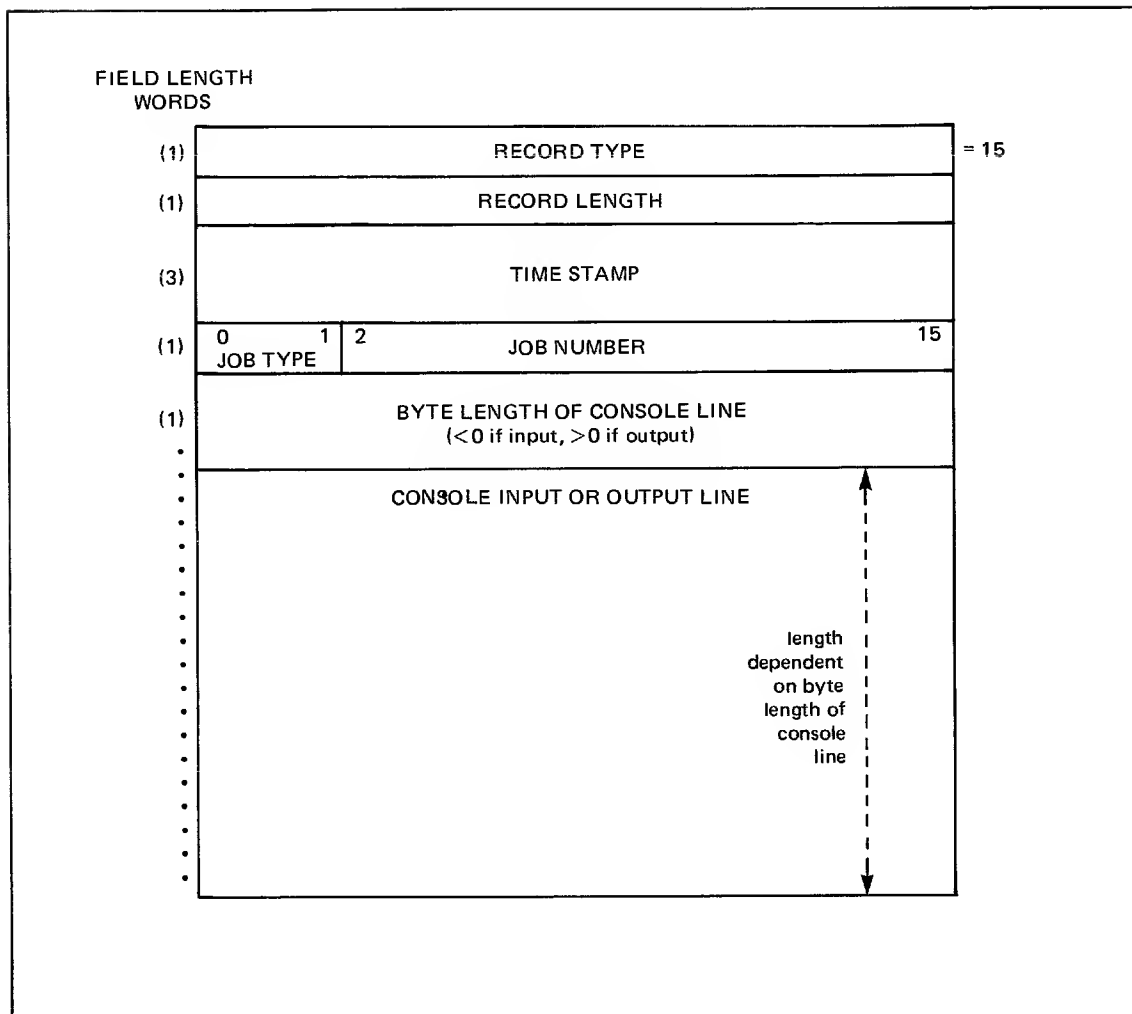


Figure 6-28a. Console Log Record (Type 15)

CONSOLE MESSAGES FOR LOG FILES. — Log file errors and status are reported to the system console through messages of the following format:

hh/mm/PIN/message

where

<i>hh</i>	The hour of the day.
<i>mm</i>	The minute of the hour.
<i>PIN</i>	Process Identification Number.
<i>message</i>	The message text.

The message text may consist of any of the following messages:

LOG FILE NUMBER x ON

A new log file (number x) has been created. This message always appears before the WELCOME message after coldload. When this message appears while the system is running, it indicates that the previous current log file has been closed. (The actual file name of the log file is *LOGxxxx*, where *xxxx* are four characters representing the same value as x in the above message, with leading zeros.)

LOG FILE NUMBER x IS 1/2 FULL

The total space now occupied by the log file data is half the allotted file size.

LOG FILE NUMBER x IS 3/4 FULL

The total space now occupied by the log file data is 3/4 the allotted file size.

LOG FILE NUMBER x ERROR #nn. LOGGING STOPPED

An irrecoverable error occurred, where *nn* is the error number as listed in table 6-7. Logging is disabled until the next system startup.

LOG FILE NUMBER x ERROR #nn. LOGGING SUSPENDED

A recoverable error occurred, where *nn* is the error number as listed in table 6-7. Logging is temporarily suspended pending a :RESUMELOG command.

LOG FILE NUMBER x LOGGING RESUMED

A :RESUMELOG Command was successfully executed.

DRIVER NAMES, TYPES, SUB-TYPES AND SIZES

APPENDIX

A

DEVICE	PART NO.	DRIVER NAME	TYPE	SUB-TYPE	RECORD WIDTH (Decimal Words)
Asynchronous Terminal Controller**	30032B	IOTERM0	16		36
Asynchronous Data Communications Controller Main	30018A	IOTERM0	16		36
Asynchronous Data Communications Controller Extender	30019B	IOTERM0	16		36
Hardwired Terminal speed sensing				0*	
Full duplex modem (103 or V.21), speed sensing				1	
Asynchronous half-duplex modem (202 or V.23), Data Rate Select ON, speed sensing				2	
Asynchronous half-duplex modem (202 or V.23), Data Rate Select OFF, speed sensing				3	
Hardwired Terminal Speed specified**				4	
Full duplex modem (103 or V.21), speed specified**				5	
Asynchronous half-duplex modem (202 or V.23), Data Rate Select ON, speed specified**				6	
Asynchronous half-duplex modem (202 or V.23), Data Rate Select OFF, speed specified**				7	
Nine-channel Magnetic Tape Unit 7970B**, 7970E	30115A	IOTAPE0	24	0	128
Line Printer**	30108A 30109A	IOLPRT0	32		66
2610, 2614**				0	
2607**				1	
2613, 2617, 2618**				2	
2617J**				3	
2608***		IOLPRT0		4	
2631A***		IOLP31		5	
<p>*These terminals should be configured with SUB-TYPE = 1 when hardwired: ASR37, Memorex 1240</p> <p>**These items are not supported on Series 33 systems.</p> <p>***These items are not supported on Series II/III systems.</p>					

DEVICE	PART NO.	DRIVER NAME	TYPE	SUB-TYPE	RECORD WIDTH (Decimal Words)
Paper Tape Reader** (2748B)	30104A	IOPTRD0	9	0	40
Paper Tape Punch** (2895A)	30105A	IOPTPN0	34	0	128
Fixed-Head Disc (2660)** 2 megabyte 4 megabyte	30103A -001 -002	IOFDISC0	1	1 2	128
Cartridge Disc (7900)** Lower Platter only Upper Platter only	30110A	IOMDISC0	0	2 1 0	128
Flexible Disc 7902 (Series 33 only)		IOFLOP0	2	0	128
Disc Drive (7905/7920/7925) 7905 (Removable** Platter) 7905 (Fixed Platter)** 7905 (Both Platters)** 7905 (System Disc** Mode)	30129A	IOMDISC1	0	4 5 6 7	128
7906*** 7906 (Removable Platter) 7906 (Fixed Platter) 7906 (Both Platters) 7920 7925 Disc Drive (2888)**	30129A			10 11 12 8 9	128
	30102A	IOMDISC0	0	3	128
Card Reader (2893A)** KATAKANA/Roman Data	30106A	IOCDRD0	8	0 1	40
Printing Reader/Punch (2894A)**	30119A	IOPRPN0	20	0	40
Plotter Series 500 Cal Comp** Series 600 Cal Comp** Series 700 Cal Comp** 0.010 in. 0.005 in. 0.0025 in. 0.00125 in. 0.002 in. 0.1 mm 0.05 mm 0.025 mm	30126A	IOPLOT0	35 36 37	0 1 2 3 4 5 6 7	128
Programmable Controller (UI)**	30361A	IOREM0	23	0	128
These items are not supported on Series 33 systems. *These items are not supported in Series II/III systems.					

DEVICE	PART NO.	DRIVER NAME	TYPE	SUB-TYPE	RECORD WIDTH (Decimal Words)
DS/3000 Synchronous Single-Line Controller** Switched Line with Modem (dial up)** Nonswitched Line with Modem (private or leased)** Hardwired Serial Interface** Communications Driver** No data compression** Data compression** Pseudo Terminal**	30055A 30360A	CSSBSC0 CSHBSC0 IODS0 IODSTRM0	18 19 41 16	 0 1 3 0 1 0	N/A N/A 128 36
MRJE/3000 Synchronous Single-Line Controller** Switched Line with Modem (dial up) Nonswitched Line with Modem (private or leased) Pseudo Line Monitor No. 1** Pseudo Line Monitor No. 2** Pseudo Console** Pseudo Line Printer** Pseudo Card Punch** Pseudo Card Reader**	30055A	CSSBSC0 and CSSMRJE0 IOMRJE0 IOMRJE1 IOMCONSO IOMPNLPO IOMPNLPO IOMRDR0	18 22 22 22 22 22 22	 0 1 0 0 0 0 0	N/A 40 40 67 67 40 40
2780/3780 Emulator** Synchronous Single-Line Controller** Switched line with Modem (dial up) Nonswitched line with Modem (private or leased)	30055A	CSSBSC0	18	 0 1	N/A
MTS/3000 Synchronous Single-Line Controller** Synchronous switched line with modem (dial up)** Synchronous switched line with modem (private or leased)** Synchronous hardwired line** Asynchronous Hardwired line** Multipoint Supervisor** Multipoint terminal**	30055A	CSSBSC0 and CSSBSC1 IOMPSP0 IOMPTRM0	18 16 16	 0 1 3 7 0 0	 N/A 40
**These items are not supported on Series 33 systems.					

DRIVER CONFIGURATION DATA

APPENDIX

B

For the following Hewlett-Packard-supported devices and drivers, input the information described below into Steps 3.7 through 3.70 and Step 10.1 of the Configurator/user dialogue.

Table B-1. Asynchronous Terminal Controller and Asynchronous Data Communications Controller Driver (IOTERM0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.6	DRT #?	For Series 33, system console must be DRT 8; see 6-19.
3.7	UNIT #?	For Series 33, all terminals must be UNIT 0; see 6-19.
3.9	Type?	16
3.10	SUBTYPE?	(See Appendix A)
3.11	TERM TYPE?	Varies with terminal — See below)
3.12	SPEED IN CHARACTERS PER SECOND?	10, 14, 15, 30, 60, 120, or 240 (for Series 33 systems, 480 and 960 are also available; 14 and 15 are not)
3.40	REC WIDTH?	(Varies with terminal)
3.41	OUTPUT DEVICE?	(ldn or class name of listing device)
3.42	ACCEPT JOBS/SESSIONS?	YES
3.43	ACCEPT DATA?	YES
3.44	INTERACTIVE?	YES
3.45	DUPLICATIVE?	YES
3.46	INITIALLY SPOOLED?	NO
3.50	DRIVER NAME?	IOTERM0
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOTERM0, <prepared file name>
TERMINAL TYPES 0 HP 2749B, ASR33 1 ASR37 2 ASR35 3 Execuport 300 4 HP 2600A, Datapoint 3300 5 Memorex 1240 6 HP 2762A/B, GE Terminet 300 and 1200 9 HP 2615A Beehive Mini Bee 10 HP2621A, 2640A/B, 2641A, 2644A, 2645A, 2647A, 2648A, Character Mode or program controlled 11 HP 2640A/B, 2641A, 2644A, 2645A, 2647A, Character mode and block/line mode without program control 12 HP 2645K Katakana/Roman Data Terminal 13 Terminal connected to a switching network or another computer 14 Multipoint Terminal 15 HP 2635A Printing Terminal (8-bit protocol for second character set) 16 HP 2635A Printing Terminal (7-bit protocol for standard character set) NOTE: On Series 33 systems, only terminal types 10 through 13, 15, and 16 are available.		

Table B-2. Nine-Channel Magnetic Tape Unit Driver (IOTAPE0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	24
3.10	SUB TYPE?	0
3.40	REC WIDTH?	128
3.41	OUTPUT DEVICE?	0
3.42	ACCEPT JOBS/SESSIONS?	YES or NO
3.43	ACCEPT DATA?	NO
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	YES or NO
3.47	INPUT OR OUTPUT?	IN (asked only if initially spooled)
3.50	DRIVER NAME?	IOTAPE0
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOTAPE0, <prepared file name>

Table B-3. Fixed-Head Disc Driver (IOFDISC0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	1
3.10	SUB TYPE?	(See Appendix A)
3.40	REC WIDTH?	128
3.41	OUTPUT DEVICE?	0
3.42	ACCEPT JOBS/SESSIONS?	NO
3.43	ACCEPT DATA?	NO
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	NO
3.50	DRIVER NAME?	IOFDISC0
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOFDISC0, <prepared file name>

Table B-4. 7900A Cartridge Disc Driver (IOMDISC0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	0
3.10	SUB TYPE?	(See Appendix A)
3.40	REC WIDTH?	128
3.41	OUTPUT DEVICE?	0
3.42	ACCEPT JOBS/SESSIONS?	NO
3.43	ACCEPT DATA?	NO
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	NO
3.50	DRIVER NAME?	IOMDISC0
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOMDISC0, <prepared file name>

Table B-5. 7902 Flexible Disc Driver (IOMFLOP0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	2
3.10	SUB TYPE?	0
3.40	REC WIDTH?	128
3.41	OUTPUT DEVICE?	0
3.42	ACCEPT JOBS/SESSIONS?	NO
3.43	ACCEPT DATA?	NO
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	NO
3.50	DRIVER NAME?	IOMFLOP0
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOMFLOP0, <prepared file name>

NOTE: The default DRT for the system disc for Series 33 systems is 16. Default for the system disc for Series II/III systems is 4.

Table B-5a. 7905A, 7906A, 7920A, or 7925 Disc Driver (IOMDISC1)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	0
3.10	SUB TYPE?	(See Appendix A)
3.40	REC WIDTH?	128
3.41	OUTPUT DEVICE?	0
3.42	ACCEPT JOBS/SESSIONS?	NO
3.43	ACCEPT DATA?	NO
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.50	DRIVER NAME?	IOMDISC1
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOMDISC1, <prepared file name>

Table B-6. Disc File Driver (IOMDISC0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	0
3.10	SUB TYPE?	3
3.40	REC WIDTH?	128
3.41	OUTPUT DEVICE?	0
3.42	ACCEPT JOBS/SESSIONS?	NO
3.43	ACCEPT DATA?	NO
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	NO
3.50	DRIVER NAME?	IOMDISC0
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOMDISC0, <prepared file name>

Table B-7. Card Reader Driver (IOCDRD0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	8
3.10	SUB TYPE?	0
3.40	REC WIDTH?	40
3.41	OUTPUT DEVICE?	(ldn or classname of listing device)
3.42	ACCEPT JOBS/SESSIONS?	YES
3.43	ACCEPT DATA?	YES
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	YES or NO
3.50	DRIVER NAME?	IOCDRD0
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOCDRD0, <prepared file name>

Table B-8. Line Printer Driver (IOLPRT0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	32
3.10	SUB TYPE?	(See Appendix A)
3.40	REC WIDTH?	66
3.41	OUTPUT DEVICE?	0
3.42	ACCEPT JOBS/SESSIONS?	NO
3.43	ACCEPT DATA?	NO
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	YES or NO
3.50	DRIVER NAME?	IOLPRT0
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOLPRT0, <prepared file name>

Table B-8a. 2631 Line Printer Driver (IOLP31)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	32
3.10	SUB TYPE?	(See Appendix A)
3.40	REC WIDTH?	66
3.41	OUTPUT DEVICE?	0
3.42	ACCEPT JOBS SESSIONS?	NO
3.43	ACCEPT DATA?	NO
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	YES or NO
3.50	DRIVER NAME?	IOLP31
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOLP31, <prepared file name>

Table B-9. Paper Tape Reader Driver (IOPTRD0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	9
3.10	SUB TYPE?	0
3.40	REC WIDTH?	40
3.41	OUTPUT DEVICE?	(ldn or classname of listing device)
3.42	ACCEPT JOBS/SESSIONS?	YES
3.43	ACCEPT DATA?	YES
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	NO
3.50	DRIVER NAME?	IOPTRD0
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOPTRD0, <prepared file name>

Table B-10. Paper Tape Punch Driver (IOPTPN0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	34
3.10	SUB TYPE?	0
3.40	REC WIDTH?	128
3.41	OUTPUT DEVICE?	0
3.42	ACCEPT JOBS/SESSIONS?	NO
3.43	ACCEPT DATA?	NO
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	NO
3.50	DRIVER NAME?	IOPTPN0
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOPTPN0, <prepared program file name>

Table B-11. Plotter Driver (IOPLOT0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	35
3.10	SUB TYPE?	(0 through 7 — see Appendix A)
3.40	REC WIDTH?	128
3.41	OUTPUT DEVICE?	0
3.42	ACCEPT JOBS/SESSIONS?	NO
3.43	ACCEPT DATA?	NO
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	YES or NO
3.50	DRIVER NAME?	IOPLOT0
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOPLOT0, <prepared program file name>

Table B-12. Printing Reader/Punch Driver (IOPRPN0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	20
3.10	SUB TYPE?	0
3.40	REC WIDTH?	40
3.41	OUTPUT DEVICE?	(ldn or classname of listing device)
3.42	ACCEPT JOBS/SESSIONS?	YES
3.43	ACCEPT DATA?	YES
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	YES or NO
3.47	INPUT OR OUTPUT?	IN or OUT
3.50	DRIVER NAME?	IOPRPN0
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOPRPN0, <prepared program file name>

Table B-13. Programmable Controller (UI) Driver (IOREM0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.9	TYPE?	23
3.10	SUB TYPE?	0
3.40	REC WIDTH?	128
3.41	OUTPUT DEVICE?	0
3.42	ACCEPT JOBS/SESSIONS?	NO
3.43	ACCEPT DATA?	NO
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	NO
3.50	DRIVER NAME?	IOREM0
10.1	ENTER PROGRAM NAME, REPLACEMENT FILE NAME?	IOREM0, <prepared program file name>

Table B-14. Synchronous Single-Line Controller (CSSBSC0, CSSBSC1, CSSMRJE0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.7	UNIT#?	0
3.8	CHANNEL#?	0
3.9	TYPE?	18
3.10	SUBTYPE?	(See Appendix A)
3.14	PROTOCOL?	1 (DS/3000, 2780/3780 Emulator, MTS/3000) 1-255 (MRJE/3000 - any value, not used)
3.15	LOCAL MODE?	1 or 2 (DS/3000, 2780/3780 Emulator) 1 MTS/3000 1-15 (MRJE/3000 - any value, not used)
3.16	TRANSMISSION CODE?	1, 2, or 3 (DS/3000, 2780/3780 Emulator) 1-63 (MRJE/3000, MTS/3000 - any value, not used)
3.17	RECEIVE TIMEOUT?	0-32000 (DS/3000, 2780/3780 Emulator MTS/3000) return (MRJE/3000, MTS/3000) Default 20 seconds.
3.18	LOCAL TIMEOUT?	0-32000 (DS/3000, 2780/3780 Emulator MTS/3000) return (MRJE/3000, MTS/3000) Default 60 seconds.
3.19	CONNECT TIMEOUT?	0-32000 (MTS/3000, DS/3000, 2780/3780 Emulator) return (MRJE/3000 - always overrides with 0 to disable this timeout)
3.20 *	DIAL FACILITY?	YES or NO (DS/3000, 2780/3780 Emulator, MTS/3000) return (MRJE/3000)
3.21 *	ANSWER FACILITY?	YES or NO (DS/3000, 2780/3780 Emulator, MTS/3000) return (MRJE/3000)
3.22 *	AUTOMATIC ANSWER?	YES or NO (DS/3000, 2780/3780 Emulator, MTS/3000) return (MRJE/3000)
3.23	DUAL SPEED?	YES (European models) NO (All others)
3.24 **	HALF SPEED?	YES or NO
3.25 ***	SPEED CHANGEABLE?	YES or NO (DS/3000, MRJE/3000, MTS/3000) NO (2780/3780 Emulator)
3.26	TRANSMISSION SPEED?	250, 300, 600, or 1200
3.27	TRANSMISSION MODE?	0 (Full duplex), 1 (Half duplex)
3.28	PREFERRED BUFFER SIZE?	0-4096 (DS/3000 - 1024 or 4096 recommended) 0-4095 (DS/3000 - 1024 or 4095 recommended) N > 0 (MRJE/3000, 2780/3780 Emulator. Any value, response not used) 250, 500, 1000, or 2000 MTS/3000
3.29	DRIVER CHANGEABLE?	NO (DS/3000, 2780/3780 Emulator) YES (MTS/3000, MRJE/3000)
3.30	DRIVER OPTIONS?	0
3.50	DRIVER NAME?	CSSBSC0 (All subsystems)
3.51 *	CONTROL LENGTH?	0

Driver Configuration Data

Table B-14. Synchronous Single-Line Controller (CSSBSC0, CSSBSC1, CSSMRJE0)
(Continued)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.52 *	PHONELIST?	YES or NO (DS/3000, 2780/3780 Emulator, MTS/3000)
3.53	PHONE NUMBER?	NO (MRJE/3000) number (A telephone number - not more than 20 characters)
3.54 *	LOCAL ID SEQUENCE?	return (2780/3780 Emulator, MRJE/3000, MTS/3000) return or ID (DS/3000)
3.55 *	REMOTE ID SEQUENCE?	return (2780/3780 Emulator, MRJE/3000, MTS/3000) return or ID (DS/3000)
3.70	DEVICE CLASSES?	class name or return (DS/3000, MRJE/3000, MTS/3000) RJLINE (2780/3780 Emulator)
3.94	ADDITIONAL DRIVER CHANGES?	NO (DS/3000, 2780/3780 Emulator) YES (MTS/3000, MRJE/3000)
3.98	ADD DRIVERS?	YES (MRJE/3000, MTS/3000)
3.99	DRIVER NAME?	CSSMRJE0 (MRJE/3000) CSSBSC1 (MTS/3000)
<p>NOTES</p> <p>* Question asked only if subtype is 0.</p> <p>** Question asked only if modem is dual speed.</p> <p>*** Question asked only if modem is single speed.</p>		

Table B-15. DS/3000 Communications Driver (IODS0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.7	UNIT #?	0
3.8	CHANNEL #?	0
3.9	TYPE?	41
3.10	SUBTYPE?	0 No data compression 1 Data compression
3.40	REC WIDTH?	128
3.41	OUTPUT DEVICE?	0
3.42	ACCEPT JOBS/SESSIONS?	NO
3.43	ACCEPT DATA?	NO
3.44	INTERACTIVE?	NO
3.45	DUPLICATIVE?	NO
3.46	INITIALLY SPOOLED?	NO
3.50	DRIVER NAME?	IODS0

Driver Configuration Data

Table B-16. DS/3000 Pseudo Terminal (IODSTRM0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.7	UNIT#?	A unique number
3.8	CHANNEL#?	0
3.9	TYPE?	16
3.10	SUBTYPE?	0
3.11	TERMTYPE?	carriage return
3.12	SPEED IN CHARACTERS PER SECOND?	carriage return
3.40	REC WIDTH?	36
3.41	OUTPUT DEVICE?	(ldn or class name of listing device)
3.42	ACCEPT JOBS/SESSIONS?	YES
3.43	ACCEPT DATA?	NO
3.44	INTERACTIVE?	YES
3.45	DUPLICATIVE?	YES
3.46	INITIALLY SPOOLED?	NO
3.50	DRIVER NAME?	IODSTRM0

Table B-17. Hardwired Serial Interface (CSHBSC0)

CONFIGURATOR STEP NO.	CONFIGURATOR OUTPUT	USER RESPONSE
3.7	UNIT#?	0
3.8	CHANNEL#?	0
3.9	TYPE?	19
3.10	SUBTYPE?	3
3.13	PORTMASK?	8 (chan0), 4 (chan1), 2 (chan2), or 1 (chan3)
3.14	PROTOCOL?	1
3.15	LOCAL MODE?	1
3.16	TRANSMISSION CODE?	2
3.17	RECEIVE TIMEOUT?	0-32000 or return
3.18	LOCAL TIMEOUT?	0-32000 or return
3.19	CONNECT TIMEOUT?	0-32000 or return
3.25	SPEED CHANGEABLE?	YES
3.26	TRANSMISSION SPEED?	250000 or 125000
3.27	TRANSMISSION MODE?	0
3.28	PREFERRED BUFFER SIZE?	0-4095 (1024 or 4095 recommended)
3.29	DRIVER CHANGEABLE?	NO
3.30	DRIVER OPTIONS?	0
3.50	DRIVER NAME?	CSHBSC0

RECOMMENDED PARAMETER SETTINGS

APPENDIX

C

CONFIGURATION GUIDELINES

Choosing an appropriate set of configuration parameters is an important part of tuning an HP 3000. In general, the various parameters should be as small as possible while still providing sufficient resources to process the required work load. The following guidelines are offered to help the system manager make an intelligent choice of parameters for his or her particular system.

The guidelines presented here assume that users are using only the standard capabilities; sites using the process handling or extra data segment capabilities should make additional allowances for the extra resources required. The table at the end of the parameter descriptions gives suggested values for a 16 user system. It also indicates the memory requirements for each table, whether it is permanently resident, and whether the configured value is automatically changed when the memory size is changed. The following terms are used:

Jobs — The maximum number of jobs that will be run at any given time.

Sessions — The maximum number of sessions that will be run at any given time.

Users — The maximum number of jobs or sessions that will be run at any given time.

Note that Users, as defined here, may be less than the sum of Jobs plus Sessions. For example, during the day the system manager allows 1 job and 16 sessions, in the evening 3 jobs and 10 sessions, and at night 6 jobs and 5 sessions.

Jobs = the maximum jobs = 6

Sessions = the maximum sessions = 16

Users = the maximum at any one time = 17

Terminals — The maximum number of configured terminals.

1. MAX # OF OPEN SPOOLFILES

This is the maximum number of spool files that may be in the OPENED state at any one time; it does not affect spool files in the ACTIVE or READY states. When a spool file is opened, MPE creates a “virtual device” of the required type by filling in an unused logical device entry with the appropriate values. In essence, this parameter tells MPE how many logical device number to reserve for spooling.

A spooled or streamed job requires at least two opened spoolfiles, one for \$STDIN and one for \$STDLIST. In addition, each user requires an open spoolfile for each access to a spooled device.

2. CST

This portion of the Code Segment Table is used for all permanently allocated code segments (those listed in LOADMAP) plus all code segments that come from any segmented library.

3. EXTENDED CST

This portion of the CST is used for all code segments that come from program files (including RL segments). It must be large enough to hold all the segments that will be allocated at any given time, whether they are allocated permanently via the ALLOCATE command or dynamically via the RUN command.

4. DST

The Data Segment Table is used for all data segments, whether they be MPE tables, user data stacks, file system segments, etc. Allow approximately $64 + 8 * \text{Users}$ — add more if user extra data segments are to be used.

5. PCB

The Process Control Block is used to contain the status of each process on the system. Allow approximately $14 + 1 * \text{Spoolers} + 2 * \text{Users}$ — add more if process handling is to be used.

6. I/O QUEUE

The I/O Queue is used to hold all I/O requests. Allow approximately $16 + 16 * \text{Spooled Output Device} + 2 * \text{Users}$.

7. TERMINAL BUFFERS

Terminal Buffers are used for all terminal I/O. Allow approximately $3 * \text{Terminals}$ — add more if page mode terminals are to be used.

8. SYSTEM BUFFERS

System buffers are used primarily to facilitate communication between MPE and the user. MPE requires at least 8 system buffers; but if MPE's internal monitoring facility is to be used, 18 system buffers must be configured. In addition, a minimum of 1 system buffer is required for each multipoint line on the system.

9. MEMORY MANAGEMENT TABLE

This table contains the various queues required by the memory manager. Allow 192 per 16 users.

10. ICS

The Interrupt Control Stack is used to process all interrupt requests. Allow 512 words.

11. UCOP REQUEST QUEUE

This is the request queue for the User Controller Process. UCOP is responsible for deleting processes, changing priorities, and expanding or contracting stacks. Allow approximately $2 * \text{Users}$ — add more if process handling is used.

12. TIMER REQUEST LIST

The Timer Request List is used for calls to PAUSE, timed terminal I/O, and various other timings such as modem turn around. Allow approximately $1 * \text{Terminals} + 1 * \text{Users}$.

13. BREAKPOINT TABLE

The Breakpoint Table is used to hold the information needed for DEBUG breakpoints. Allow at least 16 entries to aid in troubleshooting, and add more if DEBUG is used extensively.

14. # OF RINS

This parameter is the total number of Resource Identification numbers available to the system. It includes global rins, local rins, and file rins which are used whenever dynamic file locking is requested. The number of rins needed depends on the users' applications but there should be at least one per user to allow for the dynamic file locking used by subsystems such as the SEGMENTER.

35. MAX # OF EXTRA DATA SEGMENTS PER PROCESS

These parameters are used to limit the amount of resources that can be used by any given process. If the system's users are conscientious about using the minimum resources required for a given task, these parameters may be set to the maximum allowed, thereby giving the users the maximum freedom. Otherwise, limits may be imposed. It is important to note, however, that these are system-wide limits that apply to all users.

36. STANDARD STACK SIZE

This is the default stack size used if the STACK= parameter is not included in the PREP command. Since the amount of stack space needed is highly application dependent, users should be encouraged to tune their applications and use an explicit STACK declaration instead of relying on a default value.

PARAMETER	SUGGESTED VALUE FOR 16 USERS	ENTRY SIZE IN WORDS	MEMORY RESIDENT
1. MAX # OF OPEN SPOOLFILES	20	8	YES
2. CST	192	4	YES
3. EXTENDED CST	200	4	YES
4. DST	200	4	YES
5. PCB	48	16	YES
6. I/O QUEUE	48	11	YES
7. TERMINAL BUFFERS	48	16	YES
		(Series II/III)	
		32	
		(Series 33)	
8. SYSTEM BUFFERS	8	129	YES
9. MEMORY MANAGEMENT TABLE	192	5	YES
10. ICS	512	1	YES
11. UCOP REQUEST QUEUE	32	2	NO
12. TIMER REQUEST LIST	32	4	YES
13. BREAKPOINT TABLE	32	4	YES
14. # OF RINS	48	2	NO
15. # OF GLOBAL RINS	16	12	NO
16. # OF SECONDS TO LOGON	120		
17. MAX # OF CONCURRENT SESSIONS	16	1	YES
18. MAX # OF CONCURRENT JOBS	2	1	YES
19. DEFAULT JOB CPU TIME LIMIT	0		
20. LOG FILE RECORD SIZE	2		
21. LOG FILE SIZE	1023		
22. VIRTUAL MEMORY	5120		
23. DIRECTORY	768		
24. MAX # OF SPOOLFILE KILOSECTORS	128		
25. # OF SECTORS PER SPOOLFILE EXTENT	384		
26. TIME QUANTUM	500		
27. TERMINAL PRIORITY	152		
28. CS PRIORITY LIMIT	160		
29. DS PRIORITY LIMIT	200		
30. MAX # OF CONCURRENT RUNNING PROG	24	20	YES
31. MAX CODE SEGMENT SIZE	8192		
32. MAX # OF CODE SEG/PROCESS	63		
33. MAX STACK SIZE	31232		
34. MAX EXTRA DATA SEGMENT SIZE	8192		
35. MAX # OF EXTRA DATA SEG/PROCESS	4		
36. STANDARD STACK SIZE	800		

Absolute Minimum and Maximum Configuration Settings

CONFIGURATOR QUESTION	UNIT OF MEASURE	MINIMUM ALLOWED	MAXIMUM ALLOWED
MAX # OF OPEN SPOOLFILES = XXX.?	—	0	256-N ¹
CST = XXX.?	ENTRIES	2*	192
EXTENDED CST = XXXX.?	ENTRIES	1*	8192
DST = XXXX.?	ENTRIES	1*	1024
PCB = XXX.?	ENTRIES	2*	256
I/O QUEUE = XXX.?	ENTRIES	20	255 ²
TERMINAL BUFFERS = XXX.?	BUFFERS	10	255 ³
SYSTEM BUFFERS = XXX.	BUFFERS	8	255
MEMORY MANAGEMENT TABLE = XXXX.?	ENTRIES	16	1024
ICS = XXXX.?	WORDS	128*	1024
UCOP REQUEST QUEUE = XXX.?	ENTRIES	1*	256
TIMER REQUEST LIST = XXX.?	—	1*	128
BREAKPOINT TABLE = XXX.?	ENTRIES	1	255
#OF RINS = YYY	—	5	1024
#OF GLOBAL RINS USED = 0. MAX = XXXX.?	—	0	1024
#OF SECONDS TO LOGON = XXX.?	SECONDS	10	600
MAX #OF CONCURRENT SESSIONS = XXX.?	—	1	255
MAX #OF CONCURRENT RUNNING JOBS = XXX.?	—	1	255
DEFAULT JOB CPU TIME LIMIT = XXXXX.?	—	0	32767
LOG FILE RECORD SIZE (SECTORS) = X.?	SECTORS	1	8
LOG FILE SIZE (RECORDS) = XXXXX.?	—	16	32767
VIRTUAL MEMORY = XXXXX.?	SECTORS	1024	32767
DIRECTORY USED = XXX. MIN = 384 MAX = XXXX.?	SECTORS	384	6000
MAX # SPOOLFILES KILOSECTORS = XXXXXX.?	KILO-SECONDS	0	262143 (%777777D) ⁴
#SECTORS PER SPOOLFILE EXTENT = XXXX.?	SECTORS	128	32767 ⁵
TIME QUANTUM = XXXXX.?	MILLI-SECONDS	100	32767
TERMINAL PRIORITY = XXX.?	—	150	250
CS PRIORITY LIMIT = XXX.?	—	150	250
DS PRIORITY LIMIT = XXX.?	—	150	250
MAX #OF CONCURRENT RUNNING PROGRAMS = XXX.?	PROGRAM	1	123
MAX CODE SEG SIZE = XXXXX.?	WORDS	1024*	16384
MAX #OF CODE SEGMENTS/PROCESS = XXX.?	—	0*	63
MAX STACK SIZE = XXXXX.?	WORDS	256*	31232
MAX EXTRA DATA SEG SIZE = XXXXX.?	WORDS	0	32767
MAX #EXTRA DATA SEGMENTS/PROCESS = XXX.?	—	0	255
STD STACK SIZE = XXXX.?	WORDS	256	4096

*MPE, subsystems, and utilities may require values larger than these absolute minimum values to function.

Notes for table:

1. N= Number of configured devices.

2. The values in the I/O queue are based on installations supporting one spooled line printer and one spooled card reader. If your installation is different, add or subtract 15 for each spooled output device and 10 for each spooled input device. However, the absolute minimum recommended is 20 regardless of configuration.
3. Values should be based on 6 times the number of concurrent active terminal users anticipated for the system.
4. SPOOLFILE kilosectors is dependent on disc configuration (number of discs and size of discs) and planned spooling load.
5. The maximum size of a spoolfile is 32 times the number of sectors per extent. Choose the number of sectors per extent according to the size of your largest anticipated spoolfile. 384 is adequate for most applications.

NOTE

Each sector contains 128 words (256 bytes).

:LISTUSER @.LANG

U= BAUSEK

041101 052523 042513 020040 031003 000700 000000 000000 BAUSEK..2.....
020040 020040 020040 020040 041517 041117 046040 020040COBOL...
000000 000226 000000

U= COUCH

041517 052503 044040 020040 001003 000601 000000 000000 COUCH.....
020040 020040 020040 020040 041101 051511 041517 046520BASICOMP
000000 000226 000000

U= SMITH

043522 042505 047040 020040 001003 000601 000000 000000 SMITH.....
020040 020040 020040 020040 041101 051511 041440 020040BASIC...
000000 000226 000000

U= MANAGER

046501 047101 043505 051040 071003 000701 000000 000000 MANAGER.R.....
046117 041467 030462 030040 050125 041040 020040 020040 LOC7120.PUB.....
000000 000036 000000

U= MARTIN

046501 051124 044516 020040 001003 000601 000000 000000 MARTIN.....
020040 020040 020040 020040 041101 051511 041440 020040BASIC...
000000 000226 000000

U= JONES

051510 044520 046501 047040 001003 000601 000000 000000 JONES.....
020040 020040 020040 020040 041101 051511 041440 020040BASIC...
000000 000226 000000

Figure D-6. Sample :LISTUSER Listing

:SHOWQ FORMAT

The format for the information displayed by the :SHOWQ command is shown in figure D-7. The information displayed is divided into three groupings, each headed by Q PIN JOBNUM.

Processes in the right-hand group are listed in high-to-low priority order. These processes currently, or will imminently, require the CPU in order to continue. The CPU will automatically be given to the highest priority process.

Processes in the second group, also listed in high-to-low priority, are willing to yield their main memory resources to other processes. Memory is taken automatically (segment by segment) from lower priority processes first.

Processes in the left-hand group are listed in numerical order and have no main memory resources. These processes are waiting on longer term events, and will again contend for the CPU when those events occur.

:SHOWQ								
DORMANT			WAITING			RUNNING		
Q	PIN	JOBNUM	Q	PIN	JOBNUM	Q	PIN	JOBNUM
L	1		L	14		L	415	451
L	2		L	5		L	020	452
L	11		L	8				
			L	9				
			L	17				
			L	12				
			L	7				
			L	14				
			L	3				
			L	10				
			L	418	452			
			L	13				
17 PROCESSES; 500 JOANUM, 152 IPRI, 150 CPRI, 180 MPRI								

Figure D-7. :SHOWQ List Format

After displaying the process queues, =SHOWQ prints the number of processes and the scheduling parameters currently in effect.

NOTE

On occasion, a process will appear in the right-hand group as well as in one of the groups to the left. This indicates that the process was being moved to the right during the execution of =SHOWQ.

The following information is displayed for each process:

The MPE message system consists of a message catalog (CATALOG.PUB.SYS), the Help subsystem catalog (CICAT, containing descriptions of all MPE commands), and a program (MAKECAT) for managing these catalogs.

MESSAGE CATALOG

The message catalog (CATALOG.PUB.SYS) is a numbered Editor file containing message sets. The sets serve to break the catalog into manageable portions.

Messages in the catalog can be of any length and can contain up to five parameters. Continuation of a message is indicated by “%” or “&” at the end of a line. The symbol % indicates that the message is continued and that a carriage return, line feed should be performed. The & symbol indicates that the message is continued on the same line with no carriage return, line feed. Message numbers need not be contiguous, but must be in ascending order.

The position of parameters in a message is indicated by the symbol “!”. Message sets are indicated by “\$SET n”, starting in column 1 (the rest of the line is a comment). Maximum value for n is 20. Comments can be inserted in the catalog by placing “\$” in column 1. After processing by the MAKECAT program, the catalog file contains records of 80 bytes, blocked 16, with one extent. The format of the message catalog is as follows:

```
$SET 1  SYSTEM MESSAGES
1 LDEV #! IN USE BY FILE SYSTEM
2 LDEV #! IN USE BY DIAGNOSTICS
.
.
.
$ MESSAGE 57 DELETED
.
.
.
204 FILE COMMAND REQUIRES AT LEAST TWO PARAMETERS, INCLUDING
THE FORMAL NAME OF THE FILE (CIERR 204)
```

MAKECAT PROGRAM

The MAKECAT program is used to build CATALOG and CICAT. The program has the following entry points:

Beginning of program (no entry point) — Builds a new CATALOG, but CATALOG is a temporary file. Also renames any old temporary catalog CATXXXX. Thus the catalog can be verified without actually having to install it.

BUILD — Reads input file, installs this as a new catalog in the system, and moves directory into a data segment. This can be done while the system is running. (Must log on as MAN-AGER.SYS to use this entry point.)

DIR — Reads existing directory from CATALOG.PUB.SYS.

HELP — Reads input file (formal designator INPUT), builds new file with name HELP-CAT. (Must log on as MANAGER.SYS to use this entry point.)

MODIFYING CATALOG WITH MAKECAT

You must have System Manager capability to add to or modify CATALOG or CICAT. The procedure is as follows:

1. Log on as System Manager.
2. Text the file (CATALOG.PUB.SYS) into the Editor.
3. Make the change or addition.
4. Keep the file under a new name and exit the Editor.
5. Enter the following file equation:

:FILE INPUT=newname

6. Perform one of the following:

- a. Run MAKECAT,BUILD Entry point
(If everything is satisfactory, MAKECAT prints "XX NEW CATALOG INSTALLED".)
- b. Purge old catalog CATnnnn, where nnnn is an archival number, CAT0001, CAT0002, etc.
- c. Perform a SYSDUMP. (SYSDUMP runs MAKECAT, replaces CATALOG.)

EXAMPLES:

- 1) A normal user creates his own message catalog, keeps it in file MYMSGs.

:FILE INPUT = MYMSGs
: RUN MAKECAT.PUB.SYS
:SAVE CATALOG

- 2) The system manager changes or adds a few messages to CATALOG.PUB.SYS., keeps it in file NEWCAT.

:FILE INPUT = NEWCAT
:RUN MAKECAT.PUB.SYS. BUILD

- 3) The system manager restores CATALOG.PUB.SYS from mag tape.

:RESTORE *T; CATALOG.PUB.SYS
:RUN MAKECAT.PUB.SYS, DIR

HELP SUBSYSTEM CATALOG (CICAT)

The Help subsystem catalog (CICAT) contains descriptions of all MPE commands. MPE commands in the catalog are indicated by \ENTRY; subparameters (parameters, operation, example) are indicated by \ITEM or \SUBITEM. \STOPHELP causes Help to skip over any

subsequent lines until \STARHELP is encountered. \STARHELP causes Help to start displaying again. \SUBSET, placed at beginning of file, causes MAKECAT to build a file that omits the lines between \STOPHELP\STARHELP pairs. Consequently makes Help file smaller.

Thus, a typical command entry in the catalog is of the form:

```
\ENTRY=ABORT
:ABORT
```

Aborts current program or operation.

SYNTAX

```
:ABORT
```

```
\ITEM=PARMS
PARAMETERS
```

```
None
\ITEM=OPERATION
OPERATION
```

After you suspend a program or MPE command operation by pressing the BREAK key, the :ABORT command immediately terminates that program or operation. Note that the :ABORT command is available only from a session and only during a break. An :ABORT command results in the Job Control Word (JCW) being set to the SYSTEM 0 state.

```
\ITEM=EXAMPLE
EXAMPLE
```

To abort the current operation, enter:

```
:ABORT
```

MODIFYING THE HELP SUBSYSTEM CATALOG WITH MAKECAT

To modify CICAT, perform the following:

1. Log on as System Manager.
2. Text the file (CICAT.PUB.SYS) into the Editor.
3. Make the change or addition.
4. Keep the file under the new name CATNEW.
5. Enter the following file equations:

```
:PURGE CICAT
:FILE INPUT=CATNEW
:FILE HELPCAT=CICAT
```

6. Run MAKECAT,HELP Entry Point

Note that the new CICAT file can be stored offline on tape or serial disc.

DISC PACK FORMATTING

APPENDIX

H

NOTE: For a description of disc pack formatting on Series 33 systems, refer to page H-3.

Moving-head disc packs can be formatted through the use of a stand-alone diagnostic called SLEUTH. This diagnostic is on a stand-alone magnetic tape. The diagnostic is known as PD411A.

SLEUTH is designed for many types of device analysis. In this respect, we are only interested in how an operator/System Supervisor will format disc packs. This information is also documented in the *SLEUTH Diagnostic Manual*.

OPERATING INSTRUCTIONS

1. Mount the cold-loadable magnetic tape containing SLEUTH on a magnetic tape drive. Set the SWITCH REGISTER on the control panel to octal 003006. Ensure that unit 0 is selected for the drive and it is on-line.
2. While pressing (and holding) the ENABLE switch, press the LOAD switch. This action causes the first portion of the master diagnostic program to be read into main memory. The system will then halt.
3. Set the SWITCH REGISTER to the number which indicates the physical position of SLEUTH on the diagnostic magnetic tape. This number must be obtained from your Hewlett-Packard Customer Engineer prior to execution.

Press RUN switch. The system will search the magnetic tape for the SLEUTH program. It will be read into main memory when found. Tape unit will rewind.

4. When tape is back at load point, the diagnostic is now in execution. Next, depress the carriage return key on the system console so that the hardware can speed sense the console device. The console should then print:

```
D1  SLEUTH 3000 (HP D411A.00.0)
>10
```

You can now enter the dialogue necessary to format a disc pack.

5. The following examples for the various disc subtypes require the DRT number (DRTN) and the unit number (UNIT) to be inserted where applicable. These examples will suffice for the standard operations. However, you should consult your HP Customer Engineer to ensure that there have been no changes to the program before execution of these examples.

Example 1. 2888A Disc Pack
>10 DEV 0, DRTN, 14, 100, UNIT
>10 NOPR
>20 RC 0
>30 PR
>40 FMT 0

>50 END

>60 RUN

After pack has been formatted, the diagnostic will prompt with:

>60

Example 2. 7900A Disc Pack

>10 DEV 0, DRTN, 13, 100, UNIT

>10 FMT 0

>20 END

>30 RUN

After pack has been formatted, the diagnostic will prompt with:

>30

Example 3. 7905A Disc Pack

>10 DEV 0, DRTN, 15, 100, UNIT

>10 FMT 0, 9

>20 END

>30 RUN

After the pack has been formatted, the diagnostic will prompt with:

>30

Example 4. 7920A Disc Pack

>10 DEV 0, DRTN, 12, 100, UNIT

>10 FMT 0,9

>20 END

>30 RUN

After the pack has been formatted, the diagnostic will prompt with:

>30

Example 5. 7925A Disc Pack

>10 DEV 0, DRTN, 11, 100, UNIT

>10 FMT 0, 9

>20 END

>30 RUN

After the pack has been formatted, the diagnostic will prompt with:

>30

In all of the above examples, when a pack has been formatted, just continue typing in new programs or restart from step 1.

DISK PACK FORMATTING ON SERIES 33 SYSTEMS

Moving-head disc packs can be formatted through the use of the Sleuth Simulator which is a part of the Diagnostic Utility System (DUS). The DUS is on a stand-alone flexible disc and is loaded onto a shutdown system. The Sleuth Simulator is known as SLEUTHSM.

OPERATING INSTRUCTIONS

- | Step | Procedure |
|------|--|
| 1 | Insert the flexible disc containing the DUS into the HP7902 flexible disc drive. |
| 2 | On the system control panel, set the COLD LOAD thumbwheel switch to the channel address and device address of the flexible disc drive. |
| 3 | For cold loading from the System Control Panel, press the HALT key, and the COLD LOAD key. |

For cold loading from the System Console, perform the following steps:

- While pressing the CNTL key, press the HALT key.
- While pressing the CNTL key, press the COLD LOAD key.

At this point the light on the front of the HP 7902 will turn on and the diagnostic program is read into memory. This takes approximately 30 seconds. When the cold load is complete, the light will turn off.

- | | |
|---|---|
| 4 | The following message will appear on the console: |
|---|---|

DIAGNOSTIC/UTILITY SYSTEM REVISION xx.xx

Enter your program name. (TYPE HELP FOR PROGRAM INFORMATION)

:

- 5 Type “AID” on the console and press RETURN.

The following message appears on your console:

```
AID xx.xx  
>10
```

- 6 Type LOAD SLEUTHSM on the console and press RETURN.

The Sleuth Simulator is loaded into memory. The System Console displays the next line number in the program and you are ready to enter the dialog necessary to format a disc pack.

- 7 Enter the following statements to format any disc on the HP 3000 Series 33 system:

```
>5000       DEV 0,channel#,device#,20,unit#  
>5010       FMT 0  
>5020       RUN
```

PRIVATE VOLUMES

Private volumes is a facility that permits removable disc packs, when mounted on disc drives, to be accessed by MPE.

Some features of private volumes are:

- Allows users to access removable disc packs.
- When a private disc volume is mounted on a drive, MPE automatically recognizes the name of the volume and what drive it is on.
- Private volume disc packs can be formatted on line.
- Disc packs can be condensed on line (reclaims free space on a disc volume by making occupied portions of the disc contiguous, thus condensing free space which had existed between occupied portions).
- Private volume disc packs are transportable between HP 3000 Computer Systems.
- Disc-to-disc copy can be performed with private volumes.

SYSTEM/NON-SYSTEM DOMAINS

All disc drives are divided into two domains at configuration time: system domain and non-system domain. The system domain includes logical device number one and all other disc drives used for such purposes as spooling, etc. These drives will not be used for private volumes. The non-system domain contains all disc drives to be used for private volumes. Disc drives can be changed from the system domain to non-system domain only during a RELOAD. Disc drives can be added to either domain, however, during COOLSTART, COLDSTART, or UPDATE.

VOLUME SET

A volume set is a set of not more than eight removable disc volumes which share a common file directory. Volume sets are assigned and allocated at the group level within an account. A group can be assigned to only one volume set, known as its home volume set.

MASTER VOLUME

Every volume set has as one of its members a volume designated as the master volume of the set. This volume contains a directory of the volume set. The directory contains such information as a list of all accounts and groups sharing the volume set, all files within the volume set, and a table of volumes for the volume set. The files of a volume set are unique to that volume set, and cannot be shared among other volume sets. The master volume must have the same name as the volume set. For example, if a volume set is defined with the name VOLSET1, then one of the members of this volume set must be the master volume and must be named VOLSET1.

VOLUME CLASS

Volume sets can be divided into subdivisions, called volume classes. One of the volumes of a volume class must be the master volume of the set, thus a single volume can be a volume class only if it is the master volume. A volume class is identified by a unique name and is accessed as a unit. It is the smallest volume unit that can be referenced by a user. When a user references a volume class, therefore, he is notifying MPE that only a portion of a defined volume set need be mounted to satisfy the anticipated file-access requests. If a volume class consists of more than one volume, all volumes in the class must be mounted in order to access the volume class.

HOME VOLUME SET

A home volume set is the volume set or class assigned to a group when the group is created with the :NEWGROUP command or altered with the :ALTGROUP command. Files belonging to the group are located on the home volume set. A user's home volume set need not be mounted for the user to log on; it need not be mounted until such time as the user attempts to access file space in the set. A user can explicitly request that the volume set be mounted before any file access is attempted, and can release the set after he is through with it. Implicit requests to mount a group's home volume set are invoked any time the user attempts to access file space on that volume set. An implicit request causes the set to be mounted only for the duration of the operation which generated the implicit request.

USING PRIVATE VOLUMES

The following steps must be performed to allow users to access private volumes:

1. One or more disc drives must be allocated to the non-system domain during a RELOAD.
2. A volume set definition must be created with the :NEWVSET command.
3. Each member of the volume set must be conditioned with the Vinit subsystem.
4. The user must be given use private volumes capability (UV) with the :NEWUSER or :ALTUSER command.

ALLOCATING A DISC DRIVE TO THE NON-SYSTEM DOMAIN

Applicable portions of the Initiator-User Dialog, and the appropriate user responses, are listed below to demonstrate how to assign a disc drive to the non-system domain so that it can be used for private volumes. (User response is underlined.)

STEP NO.	DIALOG AND USER RESPONSE
3.1	I/O CONFIGURATION CHANGES? <u>YES</u>
3.2	LIST I/O DEVICES? <u>YES</u>
3.5	LOGICAL DEVICE #? Enter the logical device number of the disc drive to be assigned to the non-system domain.
3.6	DRT #? Enter the DRT entry number of the disc drive to be assigned to the non-system domain.
3.7	UNIT #? Enter the physical hardware unit number of the device, if the device shares its controller with other devices.
3.9	TYPE? <u>0</u>
3.10	SUB-TYPE? Enter 4 for HP 7905, 8 for HP 7920.
3.40	RECORD WIDTH? <u>128</u>

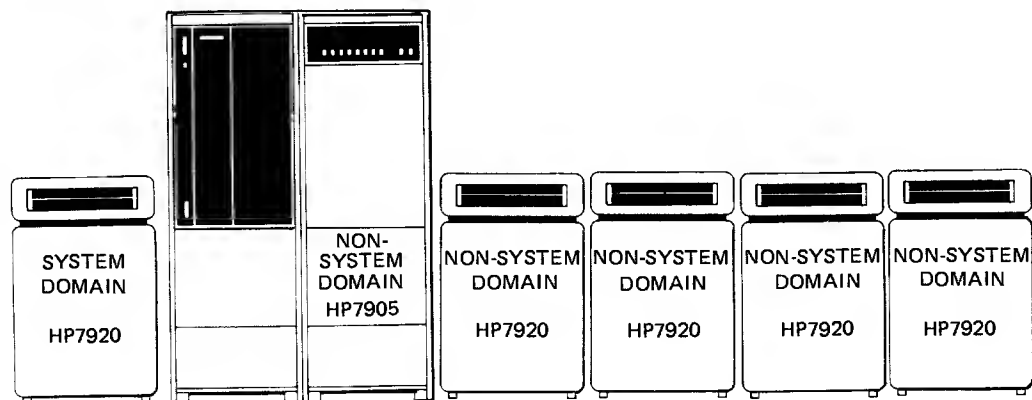
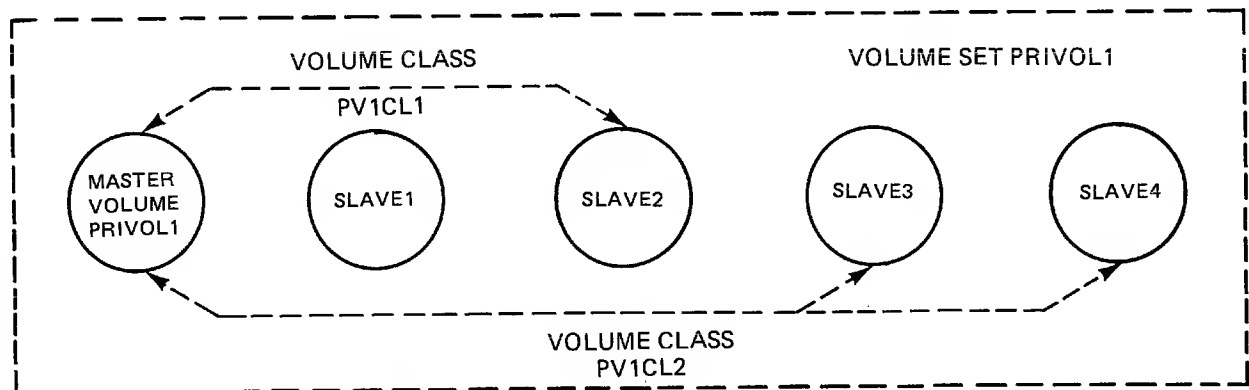
3.41	OUTPUT DEVICE? <u>0</u>
3.42	ACCEPT JOBS OR SESSIONS? <u>NO</u>
3.43	ACCEPT DATA? <u>NO</u>
3.44	INTERACTIVE? <u>NO</u>
3.45	DUPLICATIVE? <u>NO</u>
3.46	INITIALLY SPOOLED? <u>NO</u>
3.50	DRIVER NAME? <u>IOMDISC1</u>
3.70	DEVICE CLASSES? <u>PVDISC</u>
	Any arbitrary classname can be entered.
3.71	IS PVDISC A SERIAL DISC CLASS? <u>YES</u>
	This question is asked if the TYPE is 0 (moving-head disc). Enter NO for private volume (non-system) domain. (Class-name (if not a system domain disc drive) can be used for private volumes and serial disc if the answer is NO.) A YES answer signifies that the drive will be used for serial disc exclusively.
5.3	DISC VOLUME CHANGES? <u>YES</u>
5.8 (r)	NON-SYSTEM VOLUME ON DEVICE # ADD TO SYSTEM VOLUME SET? <u>NO</u>

CREATING A VOLUME SET/CLASS DEFINITION

Volume sets and classes are defined with the :NEWVSET command by System Managers, or by Account Managers who have the Create Volumes (CV) capability.

The format of the :NEWVSET command is

```
:NEWVSET vsname
      ;MEMBERS=vsname:type[,vsname:type[,...[,vsname:type]]]
      [;CLASS=vsname:vsname[,vsname[,...[,vsname]]]]
```



NOTES

1. Private volumes are removable disc packs.
2. Private volume set resides on non-system domain disc drives.
3. Volume set consists of master volume and up to seven slave volumes.
4. Volume class consists of master volume and may contain slave volumes.
5. Volume class is smallest volume unit that can be referenced by user.

Figure I-1. Private Volume Set

INIT COMMAND

The INIT command is used to complete the conditioning of a private volume formatted previously by the SLEUTH program or by the Vinit FORMAT command. The INIT command may not be used to condition a disc volume in the system domain. The format is

```
>INIT vname,ldn[,vsname.groupname.acctname][;GEN=genindex]
```

vname	Specifies the name of the volume set member (volume) to be conditioned.
ldn	Specifies the logical device number on which the volume is mounted. This parameter must specify a non-system disc drive that is in the DOWN state or SCRATCH.
vsname.groupname.acctname	Specifies the name of the volume set. This parameter (although shown as optional above) must be specified if the volume set name has not been specified in a previous >INIT command.
genindex	A value from 0 to 32767 specifying the generation index of the volume. If not specified, Vinit assigns an index of zero. All volumes of a volume set should be initialized with the same generation index to allow subsequent mountings to be successful.

If vname specifies the master volume of a volume set, additional initializing is performed. Specifically, a volume table of volume members, and a volume set file directory nucleus are placed on the volume.

Before a volume can be initialized, the following conditions must be met:

1. The volume set must have been defined previously.
2. The volume must be physically mounted on the device specified by ldn.
3. The logical device must be a non-system disc drive with a SCRATCH volume mounted, or it must be in the DOWN state. If it is DOWN but not SCRATCH, the user will be prompted to verify that he wishes to destroy the old contents of the pack. (This requirement for DOWN or SCRATCH is called "DOWN-SCRATCH".)
4. The volume must have been formatted previously with the SLEUTH program or with the Vinit FORMAT command.

As part of the initializing process, Vinit will construct a Defective Tracks Table. If defective tracks are encountered during initialization, a message indicating the number of suspect tracks detected is printed. You then should reassign the defective tracks.

FORMAT COMMAND

The FORMAT command allows online formatting of private volumes. Formatting a volume is necessary only when a new, previously unused volume is to be initialized or when an irrecoverable pack error has been detected on a previously used volume. The FORMAT command performs these tasks which the SLEUTH program does not:

1. Writes a valid SCRATCH label (see SCRATCH function).
2. Sets the tracks above the logical pack size to the SPARE state.
3. Builds a Defective Tracks Table (DTT) containing tracks which failed the verification part of the formatting process. The user is prompted to decide whether to reassign or recover each suspect track. The user may also request that certain tracks be re-assigned even though they passed the verification phase if he knows they are defective. HP disc packs come with a list of tracks which have failed a long and extensive diagnostic test. It is conceivable that such tracks may pass the single test of the FORMAT command, but THESE TRACKS SHOULD BE REASSIGNED.

The format of the FORMAT command is

>FORMAT ldn

- ldn Specifies the logical device number of the device on which the volume is mounted. This parameter must specify a non-system disc drive which is in the DOWN-SCRATCH state.

NOTE

The FORMAT switch on the disc drive must be ON for the >FORMAT command to be effective. This switch is located behind the front door of the disc drive. See the appropriate Maintenance Manual for the device if you have any questions.

SERIAL COMMAND

The SERIAL command is only used with serial disc volumes. It changes the volume label to indicate that the volume is a serial disc. The format is

>SERIAL ldn

ldn Specifies the logical device number of the device on which the volume is mounted. This parameter must specify a non-system disc drive which is in the DOWN-SCRATCH state.

SCRATCH COMMAND

The SCRATCH command allows you to set a volume to the scratch state, thus making it available for assignment to a volume set. In addition, the RESET parameter of this command can be used to set a volume from scratch to non-scratch. The format is

>SCRATCH ldn[;RESET]

ldn Specifies the logical device number of the device on which the volume is mounted. This parameter must specify a non-system disc drive which is in the DOWN-SCRATCH state.

;RESET Resets a volume from scratch to non-scratch.

COPY COMMAND

The COPY command copies the contents of one volume to a second volume. This command operates on a volume-by-volume basis. The master volume of the set need not be mounted; however, it is advisable to copy all members of a volume set at the same time. The format is

>COPY fromldn,toldn[;GEN=[genindex]]

fromldn The logical device number of the device containing the volume to be copied from.

toldn The logical device number of the device containing the volume to be copied to. This parameter must specify a device which is in the DOWN state and which has a volume mounted on it. (This volume must be set to scratch.)

;GEN=genindex A value from 0 to 32767 specifying the generation index of the volume. If not specified, the generation index of the to-volume will be one greater than that of the from-volume. If ;GEN= is specified but genindex is not, the generation index of the to-volume will be the same as that of the from-volume. You may specify a generation index for the to-volume that is different than that of the from-volume.

The following conditions must exist for the COPY command to be successful:

1. The to-device must be in the DOWN state or have a volume mounted on it.
2. Both devices must be of the same type (i.e., HP 7920A, etc.)
3. The to-device must have no deleted tracks where file extents exist on the from-device.

The COPY command will place an exact image of the from-volume on the to-volume. No compaction or other re-organization of the file space on the volume will be performed. Areas in the from-pack's Free Space Table are skipped to speed up the copying process.

COPY operates on only one from-volume at a time. Thus, in order to back up a multi-volume set, multiple COPY operations have to be performed. Please note that because the volume set directory is located only on the master volume of a set, it would be of little practical use to back up only one member of a multi-volume set.

Note that the to-volume will not be recognized automatically after copying, thus it must be switched offline then online in order for it to be used.

DSTAT COMMAND

The DSTAT command displays the status of one or more disc drives. The format is

```
ldn
>DSTAT [    ]
        ALL or @
```

ldn Specifies the logical device number of a particular disc drive.

ALL or @ Status of all disc on the system is displayed.

Default: If neither ldn or ALL is specified, status of all non-system disc drives is displayed.

An example of the DSTAT command,

```
>DSTAT ALL
LDEV-TYPE      STATUS      VOLUME (VOLUME SET-GEN)
-----
1-7920         SYSTEM      MH7920U0
2-7905(R)      PV-AVAIL    USERVOL1 (USERVOL1.PUB.SYS-0)
3-7920(R)      DOWNED      PRIVOL1  (PRIVOL1.PUB.SYS-0)
4-7920(R)      PV-AVAIL    SLAVOL1  (USERVOL1.PUB.SYS-0)
5-7920(R)      PV-AVAIL    SLAVOL2  (USERVOL1.PUB.SYS-0)
6-7920(R)      PV-AVAIL    SLAVOL3  (USERVOL1.PUB.SYS-0)
```

(The notation (R) after the disc drive type indicates removable (non-system domain).

PDEFN COMMAND

The PDEFN command prints a listing from the system directory of the volume set definition for the specified volume set. The listing contains the following information:

Volume set definition.

Number of volumes in the volume set.

The index numbers, names, and device sub-types of all the member volumes.

The format of the PDEFN command is

```
      *
>PDEFN [      .group.account]
      vsname
```

* Specifies the home volume set for the group specified.

vsname Specifies a volume set name.

If neither * nor vsname is specified, the listing will be for the volume set specified in the last INIT command.

An example of the PDEFN command:

```
>PDEFN USERVOL2.PUB.SYS
SET DEFINITION: USERVOL2.PUB.SYS      MVTAB INDEX: 0
NUMBER OF VOLUMES: 2  VOLUME MASK: %000003
INDEX  MEMBER  SUBTYPE
-----
1      USERVOL2      4
2      SLAVOL2       4
```

PDTRACK COMMAND

The PDTRACK command allows you to print a list of all suspected, reassigned and deleted tracks. The format is:

```
>PDTRACK ldn
```

ldn Specifies the logical device number of the device on which the volume is mounted.

COND COMMAND

The COND command allows you to proclaim free space on a disc volume by making occupied portions of the disc contiguous (thus using free space which had existed between occupied portions).

The format of the Vinit COND command is

```
>COND ldn [      ;SIZE=n
                ;ALL
                ;RECOVER
```

ldn Specifies the logical device number of the device on which the volume to be condensed is mounted.

;SIZE=*n* Specifies the size (in sectors) of the free space to be condensed. Setting this parameter to a value greater than the default size (50 sectors) will speed up the condense operation but this will not result in optimal reclamation of free space.

;ALL If specified, all free space on the volume will be reclaimed.

;RECOVER PRIVATE volumes only. Equivalent to "Recover lost disc space" operation of INITIAL.

If neither SIZE nor ALL is specified, only free areas of greater than 50 sectors in size will be reclaimed.

A condense operation can be performed on either a system volume or a private volume; serial volumes cannot be condensed.

Once a condense operation has started, the Vinit subsystem cannot be aborted until the operation is complete.

Unless specified otherwise in the COND command, only free areas of 50 sectors or greater in size are condensed. This method is less time consuming but results in less than optimal free-space reclamation. Thus, you are given the option to override the default size limitation of 50 sectors when the COND command is entered.

If a private volume is to be condensed, the volume set for that private volume must be mounted.

Normally, a “COND ldn: ALL” command will condense all disc space on a volume. However, areas which contain open permanent disc files, temporary files (including \$OLDPASS), and defective tracks cannot be moved. In addition, if any temporary files were open when a system failure occurred, those areas will not be moved by “COND ldn:ALL”. Such space can be recovered by the “Recover lost disc space” option of INITIAL for system volumes or by “COND ldn; RECOVER” for private volumes. The latter option, however, requires that the user of VINIT be the only session or job running in the system and have no temporary files. If any open permanent files are encountered, the RECOVER will be aborted (without changing anything on the disc). The RECOVER option is changed to ALL for system volumes.

The condense function also checks that there are no suspect tracks on any member of the volume set (system volume set or private volume set). Any such tracks must be disposed of by DTRACK for private volumes or INITIAL for system volumes.

DTRACK COMMAND

The DTRACK command allows you to reassign suspect tracks which may have been detected during normal access to the volume. The format is

>DTRACK ldn

ldn Specifies the logical device number of the device on which the volume is mounted.

An error encountered during normal access to the volume will cause the accessing program to abort. Later, you can use the Vinit DTRACK command to assign an alternate for the suspect track or mark it defective.

A suspect track causes the Defective Tracks Table for the volume to be examined. For each suspect track noted in the table, you will be asked if the suspect track should be reassigned to an alternate track or marked defective, depending on the disc subtype. If a data track is deleted or reassigned, all files having extents on the track are purged. In this case the entire volume set should be mounted.

EXIT COMMAND

The EXIT command exits the Vinit subsystem. The format is

>EXIT

USING THE VINIT SUBSYSTEM

To condition (format and initialize) a private volume:

1. Down the disc drive on which the volume will be conditioned (console =DOWN command).
2. Set the RUN-STOP switch on the disc drive to STOP.
3. Set the FORMAT switch (behind the front door of the disc drive) to ON.
4. Mount the volume on this disc drive.
5. Log on (must have SM or OP capability).
6. Run the Vinit subsystem (:VINIT command).
7. Set the volume to scratch (Vinit > SCRATCH command).
8. Format the volume (Vinit > FORMAT command).
9. Initialize the volume (Vinit > INIT command).

The following example demonstrates using the Vinit subsystem to format and initialize the master volume of the new volume set PRIVOL1. Note that because the master volume of the set is being initialized, Vinit asks for the directory size (in sectors). Enter a value between 384 and 6000. The value you enter here will depend on the number of members in the volume set. The discussion of system directory sizes in Appendix E can be used as a guide. The value of 500 sectors was used in the example and should suffice for most volume sets.

=DOWN 3

13:29/8/DISMOUNT ON LDEV# 3

13:33/8/UNKNOWN VOLUME ON LDEV# 3

:VINIT

VINIT SUBSYSTEM (A. 0)

>DSTAT ALL

LDEV-TYPE	STATUS	VOLUME (VOLUME SET-GEN)
1-7920	SYSTEM	MH7920U0
2-7905(R)	PV-AVAIL	USERVOL1 (USERVOL1.PUB.SYS-0)
3-7920(R)	DOWNED	(*0)
4-7920(R)	PV-AVAIL	SLAVOL1 (USERVOL1.PUB.SYS-0)
5-7920(R)	PV-AVAIL	SLAVOL2 (USERVOL1.PUB.SYS-0)
6-7920(R)	PV-AVAIL	SLAVOL3 (USERVOL1.PUB.SYS-0)

>SCRATCH 3

>FORMAT 3

>INIT PRIVOL1,3,PRIVOL1.PUB.SYS

ENTER DIRECTORY SIZE (SECTORS): 500

>DSTAT ALL

LDEV-TYPE	STATUS	VOLUME (VOLUME SET-GEN)
1-7920	SYSTEM	MH7920U0
2-7905(R)	PV-AVAIL	USERVOL1 (USERVOL1.PUB.SYS-0)
3-7920(R)	DOWNED	PRIVOL1 (PRIVOL1.PUB.SYS-0)
4-7920(R)	PV-AVAIL	SLAVOL1 (USERVOL1.PUB.SYS-0)
5-7920(R)	PV-AVAIL	SLAVOL2 (USERVOL1.PUB.SYS-0)
6-7920(R)	PV-AVAIL	SLAVOL3 (USERVOL1.PUB.SYS-0)

>EXIT

END OF SUBSYSTEM

ASSIGNING CREATE VOLUMES AND USE VOLUMES CAPABILITIES TO ACCOUNTS

The use volumes (UV) capability is assigned at the account and user level, thus giving users in that account the capability to access private volumes. The create volumes (CV) capability gives the Account Manager the capability to create private volume set and class definitions.

SERIES 33 SYSTEMS

APPENDIX

K

There are a number of places in this manual in which variations between Series II/III and Series 33 systems are described. Below is a list of pages on which differences are discussed. The users of Series 33 Systems are encouraged to read these pages to ensure correct usage of the systems.

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